**Washington**

**High School**

**Final**

**Prepared by Marzano Research Laboratory**

**2010**

# Algebra 1

## *Number*

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| **Strand: Number** | | | |
| **Topic: Number Systems** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.2.A know the relationship between real numbers and the number line, and compare and order real numbers with and without the number line |   **The student exhibits no major errors or omissions.** | | Without using a calculator, order the following on the number line:  , 3π, 8.9, 9, , 9.3 x 100    and describe the relationship between the numbers. |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + real numbers * performs basic processes, such as:   + orders real numbers with and without the number line   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | | **C:\Documents and Settings\cbolson\Local Settings\Temporary Internet Files\Content.Outlook\0A9XDYXS\scientific notation task.png** |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Number** | | | |
| **Topic: Approximations of Real Numbers** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.2.D determine whether approximations or exact values of real numbers are appropriate, depending on the context, and justify the selection |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + real numbers   + exact solution   + approximate solution * performs basic processes, such as:   + determines whether approximations or exact values of real numbers are appropriate, depending on the context   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Operation*

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| --- | --- | --- | --- |
| **Strand: Operation** | | | |
| **Topic: Factoring and Combining Polynomials** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.2.E use algebraic properties to factor and combine like terms in polynomials |   **The student exhibits no major errors or omissions.** | | Factor:  2x2-4x-16 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + polynomials * performs basic processes, such as:   + uses algebraic properties to factor and combine like terms in simple polynomials   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | | Combine like terms:  2x + 10 + 5x  Factor:  x2 + 7x + 10 |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| **Strand: Operation** | | | |
| **Topic: Addition and Subtraction of Polynomials** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.2.F add and subtract polynomials |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as: * adds and subtracts simple polynomials   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | | (7x3 + 3x2 – 5x + 1) – (2x3 + 4x2 + 3x + 2) |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| **Strand: Operation** | | | |
| **Topic: Multiplication and Division of Polynomials** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.2.F multiply and divide polynomials |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + multiplies and divides simple polynomials   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | | Multiply:  (2x + 3) ( x2 – 4x + 5)  Divide:  (2x3+4x2-6x)  2x |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Operation** | | | |
| **Topic: Laws of Exponents** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.2.C interpret and use integer exponents and square and cube roots, and apply the laws and properties of exponents to simplify and evaluate exponential expressions |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + exponential expressions   + cube roots   + integer exponents * performs basic processes, such as:   + uses integer exponents and square roots and applies the laws and properties of exponents to evaluate simple exponential expressions   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | | Evaluate:  ( x2) ( x3) |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Algebra*

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| --- | --- | --- | --- |
| **Strand: Algebra** | | | |
| **Topic: Variables** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.2.B recognize the multiple uses of variables, determine all possible values of variables that satisfy prescribed conditions, and evaluate algebraic expressions that involve variables |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + recognizes the multiple uses of variables (students should learn that letters may be used for variables, constants, parameters, etc…)   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | | For example:   * To represent fixed and temporarily unknown values in equations, such as 3*x* + 2 = 5; * To express identities, such as *x* + *x* = 2*x* for all *x*; * As attributes in formulas, such as *A* = *lw*; * As constants such as *a*, *b*, and *c* in the equation *y* = *ax*2 + *bx* + *c*; * As parameters in equations, such as the *m* and *b* for the family of functions defined by *y* = *mx* + *b*; * To represent varying quantities, such as *x* in *f*(*x*) = 5*x;* * To represent functions, such as *f* in *f*(*x*) = 5*x*; and * To represent specific numbers, such as π. |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Algebra** | | | |
| **Topic: Systems of Equations and Inequalities** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.1.C solve problems that can be represented by a system of two linear equations or inequalities * A1.4.D write and solve systems of two linear equations and inequalities in two variables |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + system of two linear equations   + system of two linear inequalities * performs basic processes, such as:   + understands how to set up a system of equations given a situation   + solves a system of two equations graphically, algebraically, or by using matrices   + solves a system of two inequalities graphically or algebraically   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| **Strand: Algebra** | | | |
| **Topic: Quadratic Equations** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | |  |  | | --- | --- | | **The students are expected to:** | | | * A1.5.C solve quadratic equations that can be factored as (*ax* + *b*)(*cx* + *d*) where *a*, *b*, *c*, and *d* are integers * A1.5.D solve quadratic equations that have real roots by completing the square and by using the quadratic formula |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + quadratic formula   + real roots   + leading coefficient   + coefficient * performs basic processes, such as:   + solves quadratic equations where the leading coefficient is 1   + solves simple quadratic equations with integer coefficients that have real roots by completing the square *(i.e. x2 + 4x – 13 = 0)*   + solves simple quadratic equations with integer coefficients that have real roots by using the quadratic formula *(i.e. 2x2 – 5x = 3)*   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
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| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Algebra** | | | |
| **Topic: Linear Equations and Inequalities** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.4.A write and solve linear equations and inequalities in one variable * A1.1.B solve problems that can be represented by linear functions, equations, and inequalities |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + linear functions   + linear equations   + linear inequalities * performs basic processes, such as:   + solves simple linear equations *(i.e. x – 37 = 108)*   + solves simple linear inequalities*(i.e. - ½ x > 6)*   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Algebra** | | | |
| **Topic: Forms of Linear Equations** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.4.B write and graph an equation for a line given the slope and the *y*-intercept, the slope and a point on the line, or two points on the line, and translate between forms of linear equations |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + slope-intercept form of a linear equation   + point-slope form of a linear equation   + standard form of a linear equation * performs basic processes, such as:   + writes an equation for a line given the slope and the y-intercept   + graphs an equation for a line given the slope and the y-intercept   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| **Strand: Algebra** | | | |
| **Topic: Slope and Intercepts of Linear Functions** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.4.C identify and interpret the slope and intercepts of a linear function, including equations for parallel and perpendicular lines |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + identifies the slope and intercepts of a linear function, including equations for parallel and perpendicular lines   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Algebra** | | | |
| **Topic: Arithmetic and Geometric Sequences** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.7.C express arithmetic and geometric sequences in both explicit and recursive forms, translate between the two forms, explain how rate of change is represented in each form, and use the forms to find specific terms in the sequence |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + arithmetic sequence   + geometric sequence   + explicit form of a sequence   + recursive form of a sequence   + terms of a sequence * performs basic processes, such as:   + identifies the rate of change in each form for either arithmetic or geometric sequences   + finds specific terms in either an arithmetic or geometric sequence   + expresses arithmetic and geometric sequences in both explicit and recursive forms   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Algebra** | | | |
| **Topic: Solving Equations with Multiple Variables** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.7.D solve an equation involving several variables by expressing one variable in terms of the others |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + solves a simple equation involving several variables by expressing one variable in terms of the others *(i.e. d = rt solve for r)*   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Functions*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Determining Functions** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.3.A determine whether a relationship is a function and identify the domain, range, roots, and independent and dependent variables * A1.4.E describe how changes in the parameters of linear functions and functions containing an absolute value of a linear expression affect their graphs and the relationships they represent |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + relationship   + function * performs basic processes, such as: * identifies the domain, range, roots, and independent and dependent variables * graphs absolute value   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
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| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Graphing Exponential Functions** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   * A1.7.A sketch the graph for an exponential function of the form of where *n* is an integer, describe the effects that changes in the parameters *a* and *b* have on the graph, and answer questions that arise in situations modeled by exponential functions  |  | | --- | |  |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + exponential function * performs basic processes, such as:   + sketches the graph for an exponential function and answer questions based on the graph   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Representing Functions** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.3.B represent a function with a symbolic expression, as a graph, in a table, and using words, and make connections among these representations * A1.1.A select and justify functions and equations to model and solve problems |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + represents a function with a symbolic expression, as a graph, in a table or using words   + matches equations with graphs, tables and/or situations   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Evaluating Functions** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.3.C evaluate f(x) at a (i.e., f(a)) and solve for x in the equation f(x) = b |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + function notation * performs basic processes, such as:   + evaluates f(x) at a, f(a) *(i.e. f(2)= 3x – 4)*   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Solving Exponential Functions and Equations** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.1.E solve problems that can be represented by exponential functions and equations * A1.7.B find and approximate solutions to exponential equations |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + finds solutions to simple exponential equations, 2x=32   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Graphing Quadratic Functions** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.5.B sketch the graph of a quadratic function, describe the effects that changes in the parameters have on the graph, and interpret the *x*-intercepts as solutions to a quadratic equation |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + sketches the graph of a quadratic function   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Represent and Solve Quadratic Functions** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.5.A represent a quadratic function with a symbolic expression, as a graph, in a table, and with a description, and make connections among the representations * A1.1.D solve problems that can be represented by quadratic functions and equations |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + represents a quadratic function with a symbolic expression, as a graph, in a table or using words   + matches quadratic equations with graphs, tables and/or situations   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Data Analysis, Statistics and*

## *Probability*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Data Analysis, Statistics and Probability** | | | |
| **Topic: Summary Statistics** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.6.A use and evaluate the accuracy of summary statistics to describe and compare data sets |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + summary statistics * performs basic processes, such as:   + uses summary statistics to describe and compare data sets   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Data Analysis, Statistics and Probability** | | | |
| **Topic: Using Data to Draw Conclusions** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.6.B make valid inferences and draw conclusions based on data |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + given inferences and conclusions based on data, identifies which are valid and which are not   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Data Analysis, Statistics and Probability** | | | |
| **Topic: Affects of Linear Transformations on Data** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.6.C describe how linear transformations affect the center and spread of univariate data |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + linear transformations   + univariate data * performs basic processes, such as:   + given a linear transformation, identifies the center and spread of univariate data   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Data Analysis, Statistics and Probability** | | | |
| **Topic: Linear Functions of Bivariate Data** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.6.D find the equation of a linear function that best fits bivariate data that are linearly related, interpret the slope and *y*-intercept of the line, and use the equation to make predictions |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + bivariate data * performs basic processes, such as:   + finds the equation of a linear function that best fits bivariate data   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Data Analysis, Statistics and Probability** | | | |
| **Topic: Correlation of Data** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A1.6.E describe the correlation of data in scatterplots in terms of strong or weak and positive or negative |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + identifies accurate statements about the correlation of data in scatterplots   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Processes*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Processes** | | | |
| **Topic: Problem Solving/Reasoning/Communication** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students, in course appropriate communication situations, are expected to:**   |  | | --- | | * A1.8.F summarize mathematical ideas with precision and efficiency for a given audience and purpose |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + partially summarizes mathematical ideas for a given audience and purpose   OR   * + summarizes mathematical ideas without considering audience or purpose   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Processes** | | | |
| **Topic: Problem Solving/Reasoning/Communication** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students, in course appropriate problem solving situations, are expected to:**   |  | | --- | | * A1.8.B select and apply strategies to solve problems * A1.8.D generalize a solution strategy for a single problem to a class of related problems, and apply a strategy for a class of related problems to solve specific problems * A1.8.A analyze a problem situation and represent it mathematically * A1.8.C evaluate a solution for reasonableness, verify its accuracy, and interpret the solution in the context of the original problem |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + given a problem and list of strategies, identifies the best strategy to solve the problem   + matches a problem situation to its mathematical representation   + given solutions, recognizes which are reasonable   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Processes** | | | |
| **Topic: Problem Solving/Reasoning/Communication** | | | |
| **Level: Algebra 1** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students, in course appropriate reasoning situations, are expected to:**   |  | | --- | | * A1.8.G synthesize information to draw conclusions, and evaluate the arguments and conclusions of others * A1.8.H use inductive reasoning about algebra and the properties of numbers to make conjectures, and use deductive reasoning to prove or disprove conjectures |   **The student exhibits no major errors or omissions.** | | Prove formally that the sum of two odd numbers is always even. |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + inductive reasoning   + deductive reasoning * performs basic processes, such as:   + matches information to best conclusion given information and a list of conclusions   + identifies accurate statements about inductive and deductive reasoning   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

# Geometry

## *Logic*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Logic** | | | |
| **Topic: Inductive/Deductive Reasoning** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.1.B use inductive reasoning to make conjectures, to test the plausibility of a geometric statement, and to help find a counterexample * G.1.C use deductive reasoning to prove that a valid geometric statement is true |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + counterexample * performs basic processes, such as:   + G.1.A distinguishes between inductive and deductive reasoning   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Logic** | | | |
| **Topic: Converse, Inverse and Contrapositive** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.1.D write the converse, inverse, and contrapositive of a valid proposition and determine their validity |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + converse   + inverse   + contrapositive   + proposition * performs basic processes, such as:   + given a valid proposition, matches the converse, inverse and contrapositive   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Logic** | | | |
| **Topic: Identifying Errors and Counter Examples** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.1.E identify errors or gaps in a mathematical argument and develop counterexamples to refute invalid statements about geometric relationships. |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + mathematical argument * performs basic processes, such as:   + identifies a counterexample to refute a invalid mathematical statement   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Logic** | | | |
| **Topic: Developing Postulates and Theorems** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.1.F distinguish between definitions and undefined geometric terms and explain the role of definitions, undefined geometric terms, postulates (axioms), and theorems |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + postulates   + axioms   + theorems   + undefined terms * performs basic processes, such as:   + distinguishes between definitions and undefined geometric terms   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Lines and Angles*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Lines and Angles** | | | |
| **Topic: Properties of Parallel and Perpendicular Lines** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.2.A know, prove, and apply theorems about parallel and perpendicular lines * G.2.C explain and perform basic compass and straightedge constructions related to parallel and perpendicular lines |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + recognizes or recalls theorems about parallel and perpendicular lines   + performs basic compass and straightedge constructions related to parallel and perpendicular lines   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Lines and Angles** | | | |
| **Topic: Intersections in Space** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.2.D describe the intersections of lines in the plane and in space, of lines and planes, and of planes in space |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + identifies intersections of lines in the plane and in space, of lines and planes and of planes in space   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| **Strand: Lines and Angles** | | | |
| **Topic: Angles** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.2.B know, prove, and apply theorems about angles, including angles that arise from parallel lines intersected by a transversal |   **The student exhibits no major errors or omissions.** | | Prove that if two parallel lines are cut by a transversal, then alternate-interior angles are equal. |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + recognizes or recalls theorems about angles including angles that arise from parallel lines intersected by a transversal   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Two and Three Dimensional Figures*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Two and Three Dimensional Figures** | | | |
| **Topic: Properties of Triangles** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.3.A know, explain, and apply basic postulates and theorems about triangles and the special lines, line segments, and rays associated with a triangle |   **The student exhibits no major errors or omissions.** | | Prove and explain theorems about the incenter, circumcenter, orthocenter, and centroid. |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + ray * performs basic processes, such as:   + recognizes or recalls basic postulates and theorems about triangles and special lines, line segments and rays associated with a triangle   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | | Show that the sum of the angles of a triangle is 180°. |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Two and Three Dimensional Figures** | | | |
| **Topic: Congruence/Similarity of Triangles** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.3.B determine and prove triangle congruence, triangle similarity, and other properties of triangles |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + determines triangle congruence, similarity and other properties of triangles   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Two and Three Dimensional figures** | | | |
| **Topic: Special Triangles** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.3.C use the properties of special right triangles (30°–60°–90° and 45°–45°–90°) to solve problems |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + special right triangles * performs basic processes, such as:   + identifies the properties of special right triangles   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| **Strand: Two and Three Dimensional Figures** | | | |
| **Topic: Pythagorean Theorem** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.3.D know, prove, and apply the Pythagorean Theorem and its converse |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + recognizes or recalls the Pythagorean Theorem   + applies the Pythagorean Theorem   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Two and Three Dimensional Figures** | | | |
| **Topic: Trigonometric Ratios** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.3.E solve problems involving the basic trigonometric ratios of sine, cosine, and tangent |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + trigonometric ratios   + sine   + cosine   + tangent * performs basic processes, such as:   + identifies the basic trigonometric ratios of sine, cosine and tangent   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Two and Three Dimensional Figures** | | | |
| **Topic: Parallelograms** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to know:**   |  | | --- | | * G.3.F know, prove, and apply basic theorems about parallelograms |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + recognizes or recalls basic theorems about parallelograms   + applies basic theorems about parallelograms   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Two and Three Dimensional Figures** | | | |
| **Topic: Quadrilaterals and Other Polygons** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.3.G know, prove, and apply theorems about properties of quadrilaterals and other polygons |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + recognizes or recalls theorems about properties of quadrilaterals   + applies theorems about properties of quadrilaterals   + recognizes or recalls theorems about properties of other polygons   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Two and Three Dimensional Figures** | | | |
| **Topic: Circle Constructions** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   * G.3.I perform constructions related to circles   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + performs constructions related to circles, given instructions   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Two and Three Dimensional Figures** | | | |
| **Topic: Theorems of Circles** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.3.H know, prove, and apply basic theorems relating circles to tangents, chords, radii, secants, and inscribed angles |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + tangent (circle)   + chords   + radii   + secants   + inscribed angles * performs basic processes, such as:   + recognizes or recalls theorems relating circles to tangents, chords, radii, secants and inscribed angles   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Two and Three Dimensional Figures** | | | |
| **Topic: Properties of Three-Dimensional Figures** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.3.J describe prisms, pyramids, parallelepipeds, tetrahedra, and regular polyhedra in terms of their faces, edges, vertices, and properties * G.3.K analyze cross-sections of cubes, prisms, pyramids, and spheres and identify the resulting shapes |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + parallelepipeds   + tetrahedra   + regular polyhedra   + cross-section * performs basic processes, such as:   + identifies examples of prisms, pyramids, parallelepipeds, tetrahedral, and regular polyhedra   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Coordinate Plane*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Coordinate Plane** | | | |
| **Topic: Equation of Lines in the Coordinate Plane** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.4.A determine the equation of a line in the coordinate plane that is described geometrically, including a line through two given points, a line through a given point parallel to a given line, and a line through a given point perpendicular to a given line |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + determines the slope and y-intercept of a line in the coordinate plane   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Coordinate Plane** | | | |
| **Topic: Coordinates of a Point** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.4.B determine the coordinates of a point that is described geometrically |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + determines the coordinates of a point that is described in simple geometric terms *(i.e. determines the coordinates for the midpoint of a given line segment)*   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Coordinate Plane** | | | |
| **Topic: Properties of Triangles and Quadrilaterals in the Coordinate Plane** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.4.C verify and apply properties of triangles and quadrilaterals in the coordinate plane |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + applies properties of triangles and quadrilaterals in the coordinate plane   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Coordinate Plane** | | | |
| **Topic: Circles in the Coordinate Plane** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.4.D determine the equation of a circle that is described geometrically in the coordinate plane and, given equations for a circle and a line, determine the coordinates of their intersection(s) |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + determines the coordinates of the intersection(s) of given equations for a circle and a line   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Transformations*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Transformations** | | | |
| **Topic: Properties of Transformations** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.5.B determine and apply properties of transformations |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + recognizes or recalls accurate statements about the properties of transformations   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Transformations** | | | |
| **Topic: Symmetry** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.5.D describe the symmetries of two-dimensional figures and describe transformations, including reflections across a line and rotations about a point |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + identifies the symmetries of two-dimensional figures and recognizes the transformations including reflections across a line and rotations about a point   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Transformations** | | | |
| **Topic: Compositions of Transformations in the Coordinate Plane** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.5.A sketch results of transformations and compositions of transformations for a given two-dimensional figure on the coordinate plane, and describe the rule(s) for performing translations or for performing reflections about the coordinate axes or the line *y* = *x* * G.5.C given two congruent or similar figures in a coordinate plane, describe a composition of translations, reflections, rotations, and dilations that superimposes one figure on the other |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + compositions of transformations   + superimpose * performs basic processes, such as:   + identifies accurate statements about or examples of transformations and compositions of transformations for two-dimensional figures on the coordinate plane   + identifies the rules for performing translations or for performing reflections about the coordinate axes or the line y=x   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Measurement*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Measurement** | | | |
| **Topic: Dimension Changes of Two- and Three-Dimensional Figures** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | |  | | --- | | **The students are expected to:**   * G.6.D predict and verify the effect that changing one, two, or three linear dimensions has on perimeter, area, volume, or surface area of two- and three-dimensional figures |   **The student exhibits no major errors or omissions.** | | What happens to the volume of a rectangular prism if four parallel edges are doubled in length? |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + G.6.C Apply formulas for surface area and volume of three-dimensional figures to solve problems.   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Measurement** | | | |
| **Topic: Precision and Conversions in Measurement** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.6.E use different degrees of precision in measurement, explain the reason for using a certain degree of precision, and apply estimation strategies to obtain reasonable measurements with appropriate precision for a given purpose * G.6.F solve problems involving measurement conversions within and between systems, including those involving derived units, and analyze solutions in terms of reasonableness of solutions and appropriate units |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + derived units * performs basic processes, such as:   + connects given measurements to equivalent measurements within and between systems   + uses different degrees of precision in measurement   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Measurement** | | | |
| **Topic: Arc Length and Sectors** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.6.A derive and apply formulas for arc length and area of a sector of a circle |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + arc length   + sector of a circle * performs basic processes, such as:   + recognizes or recalls formulas for arc length and area of a sector of a circle   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Measurement** | | | |
| **Topic: Spheres** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * G.6.B analyze distance and angle measures on a sphere and apply these measurements to the geometry of the earth |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + uses the formulas for finding distance and angle measurements on a sphere   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Processes*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Processes** | | | |
| **Topic: Problem Solving/Reasoning/Communication** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students, in course appropriate problem solving situations, are expected to:**   |  | | --- | | * G.7.A analyze a problem situation and represent it mathematically * G.7.B select and apply strategies to solve problems * G.7.C evaluate a solution for reasonableness, verify its accuracy, and interpret the solution in the context of the original problem * G.7.D generalize a solution strategy for a single problem to a class of related problems, and apply a strategy for a class of related problems to solve specific problems |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + given a problem and list of strategies, identifies the best strategy to solve the problem   + matches a problem situation to its mathematical representation   + identifies the answer for reasonableness   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Processes** | | | |
| **Topic: Problem Solving/Reasoning/Communication** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students, in course appropriate communication situations, are expected to:**   |  | | --- | | * G.7.F summarize mathematical ideas with precision and efficiency for a given audience and purpose |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + partially summarizes mathematical ideas for a given audience and purpose   OR   * + summarizes mathematical ideas without considering audience or purpose   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Processes** | | | |
| **Topic: Problem Solving/Reasoning/Communication** | | | |
| **Level: Geometry** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students, in course appropriate reasoning situations, are expected to:**   |  | | --- | | * G.7.G synthesize information to draw conclusions and evaluate the arguments and conclusions of others * G.7.H use inductive reasoning to make conjectures, and use deductive reasoning to prove or disprove conjectures |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + inductive reasoning   + deductive reasoning * performs basic processes, such as:   + given information and a list of conclusions, matches information to best conclusion   + identifies accurate statements about inductive and deductive reasoning   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

# Algebra 2

## *Number*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Number** | | | |
| **Topic: Number Systems** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.2.A explain how whole, integer, rational, real, and complex numbers are related, and identify the number system(s) within which a given algebraic equation can be solved |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + real numbers   + complex numbers * performs basic processes, such as:   + identifies the number system(s) within which a given algebraic equation can be solved   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Operation*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Operation** | | | |
| **Topic: Law of Exponents** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   * A2.2.B use the laws of exponents to simplify and evaluate numeric and algebraic expressions that contain complex rational exponents   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + law of exponents * performs basic processes, such as:   + uses the laws of exponents to simplify and evaluate numeric and algebraic expressions that contain simple (unit fraction exponents) rational exponents *(i.e. Simplify 241/3 )*   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Operation** | | | |
| **Topic: Operations with Rationals** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.2.C add, subtract, multiply, divide, and simplify rational and more general algebraic expressions |   **The student exhibits no major errors or omissions.** | | Divide:  (x+2)3/2 by x+2  x+1 x2-1 |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + adds, subtracts, multiplies, divides, and simplifies less complex algebraic expressions   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | | Subtract:  x+1 \_ x+2  x-1 x2-1 |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Algebra*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Algebra** | | | |
| **Topic: Arithmetic and Geometric Series** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.7.B find the terms and partial sums of arithmetic and geometric series and the infinite sum for geometric series |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + infinite sums   + arithmetic series   + geometric series * performs basic processes, such as:   + finds the terms of arithmetic and geometric series given the rule   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Algebra** | | | |
| **Topic: Exponential and Logarithmic Functions** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   * A2.4.A know and use basic properties of exponential and logarithmic functions and the inverse relationship between them * A2.4.C solve exponential and logarithmic equations   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + logarithmic functions * performs basic processes, such as:   + knows and uses basic properties of simple exponential and logarithmic functions   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Algebra** | | | |
| **Topic: Systems of Equations** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.1.B solve problems that can be represented by systems of equations and inequalities * A2.7.A solve systems of three equations with three variables |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + solves simple systems of three equations with three variables with integer solutions   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | | Solve:  2x – y – z = 7  3x + 5y + z = -10  4x – 3y + 2z = 4 |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Algebra** | | | |
| **Topic: Quadratic Equations** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   * A2.3.C solve quadratic equations and inequalities, including equations with complex roots  |  | | --- | | * A2.3.B determine the number and nature of the roots of a quadratic function |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + complex roots * performs basic processes, such as:   + solves quadratic equations and inequalities, with real roots   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Functions*

|  |  |  |  |
| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Representing Problems with Functions** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.1.A select and justify functions and equations to model and solve problems |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + selects functions and equations to model and solve problems   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Quadratic Functions** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.3.A translate between the standard form of a quadratic function, the vertex form, and the factored form; graph and interpret the meaning of each form |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + graphs and interprets the meaning of the standard form of a quadratic function, the vertex form, and the factored form   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Representing Problems with Quadratics** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.1.C solve problems that can be represented by quadratic functions, equations, and inequalities |  |  | | --- | |  |   **The student exhibits no major errors or omissions.** | | Fireworks are launched upward from the ground with an initial velocity of 160 feet per second. The formula for vertical motion is h(t) = 0.5a + vt + s, where the gravitational constant, a, is -32 feet per square second, v represents the initial velocity, and s represents the initial height. Time t is measured in seconds, and height h is measured in feet.  For the ultimate effect, the fireworks must explode after they reach the maximum height. For the safety of the crowd, they must explode at least 256 ft above the ground. The fuses must be set for the appropriate time interval that allows the fireworks to reach this height. What range of times, starting from initial launch and ending with fireworks explosion, meets these conditions? |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + solves problems that can be represented by simple quadratic functions and equations   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Graphing Exponential and Logarithmic Functions** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.4.B graph an exponential function of the form *f(x)* = *abx* and its inverse logarithmic function |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + graphs a simple exponential function of the form *f(x)* = *abx*   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Adding and Subtracting Functions** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.5.A construct new functions by adding and subtracting functions, and describe the effect on the original graph(s) |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + constructs new functions by adding and subtracting functions   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Transformations of Functions** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.5.A construct new functions using the transformations *f*(*x* – *h*), *f*(*x*) + *k*, *cf*(*x*), and describe the effect on the original graph(s) |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + constructs new functions using the transformations *f*(*x* – *h*), *f*(*x*) + *k*, or *cf*(*x*)   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Square Root Functions** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.5.B Plot points, sketch, and describe the graphs of functions of the form *f(x)=a*d and solve related equations | |  | |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + plots points and sketch the graphs of functions of the form *f(x)=*   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| **Strand: Functions** | | | |
| **Topic: Cubic Polynomial Functions** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   * A2.5.D plot points, sketch, anddescribe the graphs of cubic polynomial functions of the form as an example of higher order polynomials and solve related equations   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + cubic polynomials * performs basic processes, such as:   + plots points and sketch the graphs of cubic polynomial functions of the form   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| **Strand: Functions** | | | |
| **Topic: Inverse Variation Functions** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | |  | | * A2.5.C plot points, sketch, and describe the graphs of functions of the form f(x)=+b, f(x)=+b, f(x)=and solve related equations * A2.1.E solve problems that can be represented by inverse variations of the forms f(x)=+b, f(x)=+b, f(x)= | |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + plots points and sketch the graphs of functions of the form f(x)=+b, f(x)=+b, f(x)=   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Functions** | | | |
| **Topic: Representing Problems with Exponential and Logarithmic Functions** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.1.D solve problems that can be represented by exponential and logarithmic functions and equations |  |  | | --- | |  |   **The student exhibits no major errors or omissions.** | | The half-life of a certain radioactive substance is 65 days. If there are 4.7 grams initially present, how long will it take for there to be less than 1 gram of the substance remaining? |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + solves problems that can be represented by simple exponential and logarithmic functions and equations   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | | Using the equation =P(1+(r/n))nt if you need $15,000 in 4 years to start college, how much money would you need to invest now? Assume an annual interest rate of 4% compounded monthly. |
|  | **1.5** |  |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Data Analysis, Statistics and Probability*

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| --- | --- | --- | --- |
| **Strand: Data Analysis, Statistics and Probability** | | | |
| **Topic: Summary Statistics** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.6.F calculate and interpret measures of variability and standard deviation and use these measures and the characteristics of the normal distribution to describe and compare data sets |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + standard deviation   + measures of variability   + normal distribution * performs basic processes, such as:   + calculates and interprets measures of variability and standard deviation   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Data Analysis, Statistics and Probability** | | | |
| **Topic: Models of Bivariate Data** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.6.E determine if a bivariate data set can be better modeled with an exponential or a quadratic function and use the model to make predictions |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + makes predictions using a given model based on an exponential or a quadratic function   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| **Strand: Data Analysis, Statistics and Probability** | | | |
| **Topic: Compound Events** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.6.A apply the fundamental counting principle and the ideas of order and replacement to calculate probabilities in situations arising from two-stage experiments (compound events) * A2.6.B given a finite sample space consisting of equally likely outcomes and containing events A and B, determine whether A and B are independent or dependent, and find the conditional probability of A given B |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + finite sample space   + conditional probability * performs basic processes, such as:   + identifies accurate statements about the fundamental counting principle   + identifies accurate statements about independent and dependent variables and the conditional probability   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |
| **Strand: Data Analysis, Statistics and Probability** | | | |
| **Topic: Binomial Theorem** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.6.D apply the binomial theorem to solve problems involving probability |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + binomial theorem * performs basic processes, such as:   + applies the binomial theorem to solve simple problems involving probability   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Data Analysis, Statistics and Probability** | | | |
| **Topic: Confidence Interval** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  | | --- | | * A2.6.G calculate and interpret margin of error and confidence intervals for population proportions |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + margin of error   + confidence interval * performs basic processes, such as:   + calculates margin of error and confidence intervals for population proportions   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Data Analysis, Statistics and Probability** | | | |
| **Topic: Combinations and Permutations** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students are expected to:**   |  |  | | --- | --- | | |  | | --- | | * A2.1.F solve problems involving combinations and permutations * A2.6.C compute permutations and combinations, and use the results of permutations and combinations to calculate probabilities | |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * recognizes or recalls specific terminology such as:   + combinations   + permutations * performs basic processes, such as:   + computes permutations and combinations   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

## *Processes*

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| **Strand: Processes** | | | |
| **Topic: Problem Solving/Reasoning/Communication** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students, in course appropriate problem solving situations, are expected to:**   |  | | --- | | * A2.8.A analyze a problem situation and represent it mathematically * A2.8.B select and apply strategies to solve problems * A2.8.C evaluate a solution for reasonableness, verify its accuracy, and interpret the solution in the context of the original problem * A2.8.D generalize a solution strategy for a single problem to a class of related problems and apply a strategy for a class of related problems to solve specific problems |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + identifies the best strategy to solve the problem given a problem and list of strategies   + matches a problem situation to its mathematical representation   + identifies a reasonable answer   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |
| **Strand: Processes** | | | |
| **Topic: Problem Solving/Reasoning/Communication** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students, in course appropriate communication situations, are expected to:**   |  | | --- | | * A2.8.F summarize mathematical ideas with precision and efficiency for a given audience and purpose |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + Partially summarizes mathematical ideas for a given audience and purpose   OR   * + summarizes mathematical ideas without considering audience or purpose   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |

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| --- | --- | --- | --- |
| **Strand: Processes** | | | |
| **Topic: Problem Solving/Reasoning/Communication** | | | |
| **Level: Algebra 2** | | | |
| **Score 4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.** | | **Sample Tasks** |
|  |
|  | **3.5** | In addition to score 3.0 performance, in-depth inferences and applications with partial success. |  |
| **Score 3.0** | **The students, in course appropriate problem solving situations, are expected to:**   |  | | --- | | * A2.8.G use inductive reasoning and the properties of numbers to make conjectures, and use deductive reasoning to prove or disprove conjectures * A2.8.H synthesize information to draw conclusions and evaluate the arguments and conclusions of others |   **The student exhibits no major errors or omissions.** | |  |
|  | **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content |  |
| **Score 2.0** | **There are no major errors or omissions regarding the simpler details and processes as the student:**   * performs basic processes, such as:   + given information and a list of conclusions, matches information to best conclusion   + identifies accurate statements about inductive and deductive reasoning   **However, the student exhibits major errors or omissions regarding the more complex ideas and processes.** | |  |
|  | **1.5** | Partial knowledge of the 2.0 content but major errors or omissions regarding the 3.0 content |  |
| **Score 1.0** | **With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.** | |
|  | **0.5** | With help, a partial understanding of the 2.0 content but not the 3.0 content |
| **Score 0.0** | **Even with help, no understanding or skill demonstrated.** | |