11th grade test items

1. Concepts and Procedures

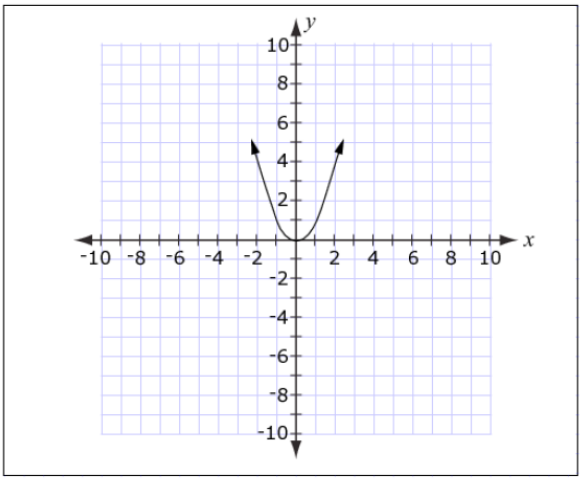
Claim__1__

DOK__2____

1969

The graph of $y = x^2$ is shown on the grid.

Drag the graph to show the graph of $y = (x - 4)^2 + 2$.



2. Communicating Reasoning

Claim__3___

DOK___3___

1998

Which statement is correct about the values of x and y in the following equation?

$7x + xy = xy + 21$

(A) The equation is true for all ordered pairs (x, y).

(B) There are no (x, y) pairs for which this equation is true.

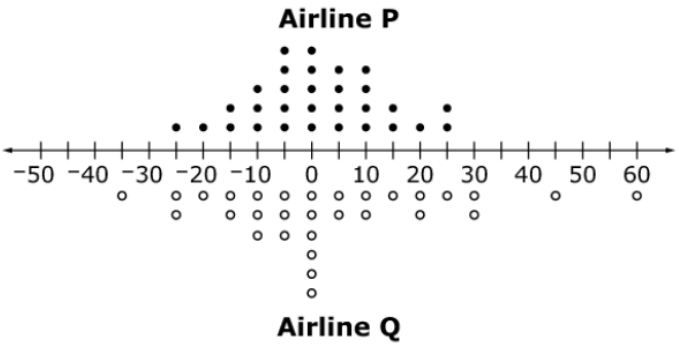
(C) For each value of x, there is one and only one value of y that makes the equation true.

(D) For each value of y, there is one and only one value of x that makes the equation true.

3. Modeling and Data Analysis

2055

The dot plots below compare the number of minutes 30 flights made by two airlines arrived before or after their scheduled arrival times.



- Negative numbers represent the minutes the flight arrived before its scheduled time.
- Positive numbers represent the minutes the flight arrived after its scheduled time.
- Zero indicates the flight arrived at its scheduled time.

Assuming you want to arrive as close to the scheduled time as possible, from which airline should you buy your ticket? Use the ideas of center and spread to justify your choice.

Claim___4__

DOK___3___

4. Communicating Reasoning

2005

Ashley claims that when you multiply two different **square roots** together, the product is always **rational**. For example, $\sqrt{2} \cdot \sqrt{18} = \sqrt{36} = 6$ and $\sqrt{3} \cdot \sqrt{27} = \sqrt{81} = 9$.

She also claims that when you multiply two different **cube roots** together, the product is always **irrational**. For example, $\sqrt[3]{2} \cdot \sqrt[3]{18} = \sqrt[3]{36} \approx 3.3019$ and $\sqrt[3]{3} \cdot \sqrt[3]{27} = \sqrt[3]{81} \approx 4.3267$.

Which statement correctly classifies Ashley's claims and provides appropriate reasoning?

(A) Ashley is correct because her examples support both claims.

(B) Ashley is correct about the product of square roots always being rational, but the product of cube roots can sometimes be rational.

(C) Ashley is incorrect about the product of square roots always being rational, but she is correct that the product of cube roots is always irrational.

(D) Ashley is incorrect because sometimes the product of square roots can be irrational and sometimes the product of cube roots can be rational.

Claim__3___

DOK___3___

5. Concepts and Procedures

1915

Determine whether each expression is equivalent to $(x^3 + 8)$. Select Yes or No for each expression.

	Yes	No
$(x + 8)^3$	☐	☐
$(x - 2)(x^2 + 2x + 4)$	☐	☐
$(x + 2)(x^2 - 2x + 4)$	☐	☐

Claim__1__

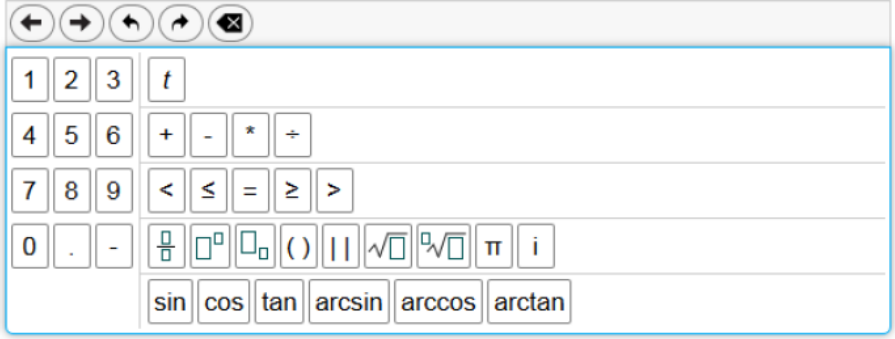
DOK__1___

6. Concepts and Procedures

1922

Jim can paint a house in 12 hours. Alex can paint the same house in 8 hours.

Enter an equation that can be used to find the time in hours, t, it would take Jim and Alex to paint the house together.



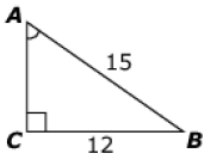
Claim___1__

DOK__2____

7. Concepts and Procedures

1930

Consider this right triangle.



Enter the measure of ∠*CAB* to the nearest hundredth degree.

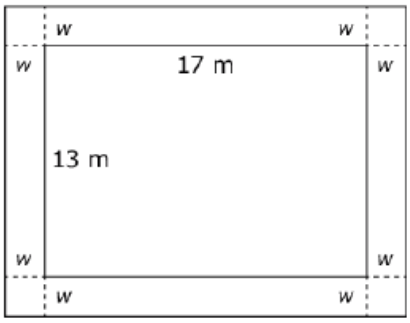
Claim___1__

DOK__2____

8. Problem Solving

2028

A rectangular garden measures 13 meters by 17 meters and has a cement walkway around its perimeter, as shown. The width of the walkway remains constant on all four sides. The garden and walkway have a combined area of 396 square meters.



Part A

Enter an equation that could be used to help determine the width, *w*, of the walkway in the first response box.

Part B

Determine the width, in meters, of the walkway. Enter your answer in the second response box.

Claim__2___

DOK____2__