

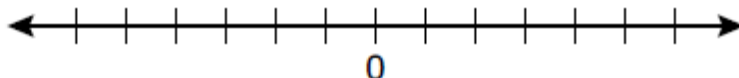
Grade 8
Released Items

8N2

Number Operations and Concepts - Understand ways to represent numbers, relationships among numbers, and number systems

One winter morning the temperature at 7 a.m. was -2°F . At noon on the same day, the temperature was 6°F .

Part A. On the number line below, label the number line and mark the location of point P at -2 and point Q at 6 .



Part B. What is the number of degrees the temperature had risen between 7 a.m. and noon? Write your answer in the space below. Show or explain how you got your answer. You may use the number line to show your work.

Number of Degrees: _____

8N3

Number Operations and Concepts - Develop the connection between conceptual understanding and computational proficiency

Jordan went to the grocery store and placed 10 items into his basket.

- **Three of the items ranged in price from \$0.50 to \$1.00, including tax.**
- **The rest of the items ranged in price from \$3.50 to \$5.75, including tax.**

Jordan has \$30.00 and believes he has enough money to pay for the 10 items. In the space below, use estimation to show or explain why Jordan most likely does not have enough money to pay for the 10 items.

Explanation: _____

In his math class, Rodrigo simplified an algebraic expression, as shown below.

Expression $2 + 6(5 + 4) \div 3$

Step 1 $8(5 + 4) \div 3$

Step 2 $8(9) \div 3$

Step 3 $72 \div 3$

Step 4 24

Part A. In the space below, explain the error Rodrigo made when he simplified the expression.

Explanation: _____

Part B. What is the correct value of the expression? In the space below, show each of the steps you used to get your answer.

Correct Value of Expression: _____

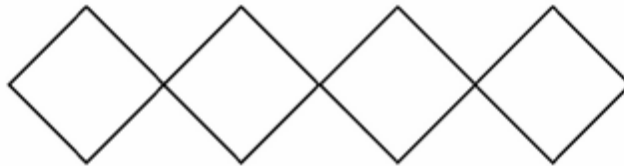
8G1

Geometry - Specify locations and describe spatial relationships using coordinate geometry and other representational systems

Jerry is training his pigeons to fly home from distant places. Starting from his house, Jerry drives 13 miles east and then 6 miles north where he lets the pigeons go. If the pigeons fly directly home, which of these is closest to the number of miles they will fly?

- A . 8.8 mi
- B . 14.3 mi
- C . 19 mi
- D . 205 mi

Theodore placed square tiles on his kitchen wall in a horizontal manner, as shown in the design below.



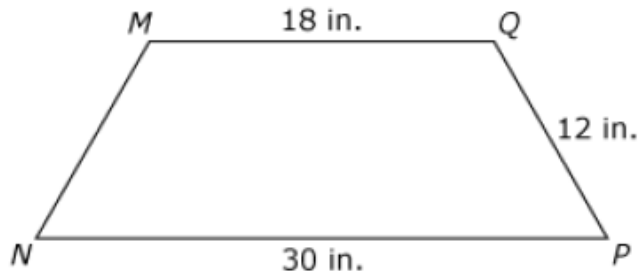
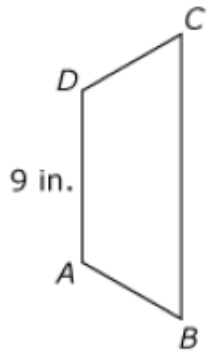
Which of the following does not describe a part of the design?

- A . Parallel line segments
- B . Perpendicular line segments
- C . Right angles
- D . Obtuse angles

8G3

Geometry - Apply transformations and use symmetry to analyze mathematical situations

In the drawing below, $ABCD$ is an isosceles trapezoid.



If $MNPQ$ is similar to $ABCD$, which of the following statements is true?

- A $\angle C$ is congruent to $\angle Q$.
- B The length of segment BC is 12 in.
- C The measure of $\angle N$ is twice the measure of $\angle B$.
- D Segment AB is $\frac{1}{2}$ the length of segment PQ .

8M1

Measurement - Understand measurable attributes of objects and the units, systems, and processes of measurement

8M2

Measurement - Apply appropriate techniques, tools, and formulas to determine perimeter, area or volume

In math class Rachel was asked to build a rectangular prism using 18 wooden cubes. The edges of each cube are 1 inch in length.

Part A. Rachel used all 18 cubes to build the prism. In the space below, draw a picture of what Rachel's prism could look like, and write the dimensions of the prism.

Part B. What is the surface area of the rectangular prism you drew in Part A? Write your answer in the space below. Show or explain how you got your answer.

Surface Area in Square Inches: _____

8A1

Algebra - Understand patterns, relations, and functions

What value of d will make the following equation true?

$$d - 12 = 36$$

- A - 3
- B 14
- C 24
- D 48

A home-improvement center rents power washers to customers for a one-time charge of \$15 plus an hourly rate of \$5. The equation below can be used to find r , the total charge to rent a power washer for h hours.

$$r = 15 + 5h$$

What is the total charge to rent a power washer for 4 hours?

- A \$20
- B \$24
- C \$35
- D \$80

8A2

Algebra - Use mathematical models to represent and understand quantitative relationships

A fathom is a unit used to measure nautical depth. One fathom is equivalent to 1.8 meters. Which of these expressions can be used to determine the number of fathoms in m meters?

2

A . $m - 1.8$

B . $m + 1.8$

C . $1.8m$

D . $\frac{m}{1.8}$

8D1

Data Analysis and Probability - Collect, organize, and display relevant data to answer questions and use appropriate statistical methods to analyze the data

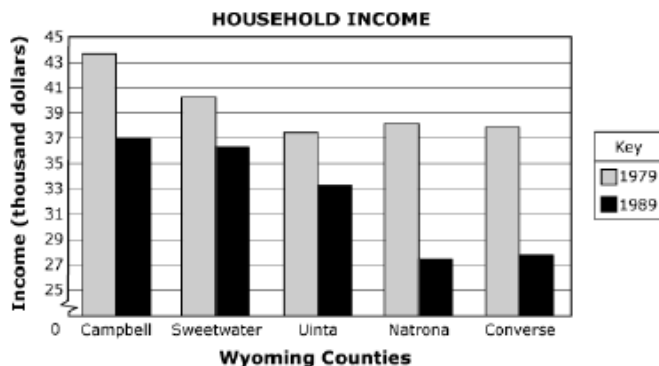
The heights of the 10 players on a high school basketball team are shown below.

Heights of Players

63 in.	72 in.
72 in.	69 in.
70 in.	70 in.
65 in.	72 in.
76 in.	73 in.

What is the median height of the players on the team?

- A. 68 in.
- B. 70 in.
- C. 71 in.
- D. 72 in.



The graph compares the median household income of five Wyoming counties for 1979 and 1989.

Which of the following statements about the information on the graph appears to be true?

- A Campbell County had the greatest household income during both 1979 and 1989.
- B Natrona County had the least range in household income between 1979 and 1989.
- C For all five counties, the mean household income in 1989 was greater than the mean household income in 1979.
- D For all five counties, the range in the household income during 1989 was less than the range of the household income in 1979.

8D2

Data Analysis and Probability - Develop and evaluate inferences and predictions that are based on data