

## **PAWS** Mathematics Grade 8 Released Items

# With Data







Kaitlin is going to wrap her brother's birthday present in a box that is shaped like a right rectangular prism. The box is 7.5 inches long, 3 inches wide, and 5 inches high. What is the smallest amount of wrapping paper in square inches that Kaitlin will need to cover the box?

- A 30 sq in.
- B 45 sq in.
- © 75 sq in.
- Iso sq in.





Chris, Kelly, and Pat were the first three students to finish an obstacle course.

- Chris finished in 5.8 minutes.
- Kelly finished in  $5\frac{5}{8}$  minutes.
- Pat finished in  $\frac{52}{9}$  minutes.

Which list shows their finish times from least to greatest?

**A.**  $5\frac{5}{8}, \frac{52}{9}, 5.8$  **B.**  $5\frac{5}{8}, 5.8, \frac{52}{9}$  **C.**  $5.8, \frac{52}{9}, 5\frac{5}{8}$ **D.**  $5.8, 5\frac{5}{8}, \frac{52}{9}$ 



#### Point *A* lies on line *GH* as shown on the coordinate plane.

Which of the following best represents the coordinates of a point on a line perpendicular to line *GH* at point *A*?

- **A.** (6, 3)
- **B.** (3, 6)
- **C.** (6, 5)
- **D.** (5, 6)

Jamie bought a tablecloth for her circular table. She then sewed a fringe trim along the entire edge, as shown in the picture below.



If Jamie sewed a total of 16 feet of fringe trim along the entire edge of the tablecloth, which of these is closest to the radius in feet of the tablecloth? (Use  $\pi \approx 3.14$ )

- **A.** 1.9 ft
- **B.** 2.5 ft
- **C.** 5.1 ft
- **D.** 6.4 ft

## The chart below shows the winning speeds for the past 5 years at a dragster racetrack.

Year	Speed (mph)
1	291
2	303
3	283
4	291
5	300

#### Winning Speeds at a Dragster Racetrack

#### What is the range of the speeds listed in the chart?

- **A.** 303
- **B.** 291
- **C.** 20
- **D.** 9

Janet is planning to purchase a membership at a local health club. The health club charges each member a one-time enrollment fee of \$50 plus a monthly fee of \$19.		
Part A.	In the space below, write an equation that Janet could use to calculate <i>c</i> , the total charge for joining the health club and being a member for <i>m</i> months.	
Equation:		
Part B.	Janet has saved \$225 to purchase a membership at the health club. After paying the enrollment fee, what is the number of membership months Janet can purchase using her savings? Write your answer in the space below. Show or explain how you got your answer.	
Number of Months:		

René cut 5 pieces of fabric of the same length from a roll of fabric to make curtains.

- Each piece of fabric was  $8\frac{1}{4}$  feet in length.
- The roll of fabric was 45 feet in length.

What is the amount of fabric remaining on the roll?

**A.** 
$$3\frac{1}{5}$$
 ft  
**B.**  $3\frac{3}{4}$  ft  
**C.**  $4\frac{1}{5}$  ft  
**D.**  $4\frac{3}{4}$  ft

An agricultural lab uses the following equation to predict *h*, the height of a plant in inches after *w* weeks of experimental growth.

$$h = 8w$$

What will be the height of the plant in inches after 5 weeks of experimental growth?

- **A.** 40 in.
- **B.** 13 in.
- **C.**  $\frac{8}{5}$  in.
- **D.** <u>5</u> in.

## Jason drew an angle that measured 65°. What would be the measure of its complementary angle?

**A.** 115°

- **B.** 105°
- **C.** 35°
- **D.** 25°

Theo spun the arrow of a spinner 20 times during a math game. The spinner is divided into 4 sections of equal size, each labeled blue, green, red or yellow. The table shows the number of times the arrow landed on each section.

Theo's Spinner Data	
Section	Number
Blue	6
Green	2
Red	3
Yellow	9

#### - - -.

#### Based on theoretical probability, which statement best describes the outcomes of the arrow landing on a yellow section?

- **A.** It landed 4 more times than expected.
- **B.** It landed 5 more times than expected.
- **C.** It landed 4 less times than expected.
- **D.** It landed 5 less times than expected.





## **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. 0 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 i his basket.	to the grocery store and placed 10 items into
<ul> <li>Three of th including ta</li> </ul>	e items ranged in price from \$0.50 to \$1.00, ax.
<ul> <li>The rest of including ta</li> </ul>	the items ranged in price from \$3.50 to \$5.75, ax.
Jordan has \$3 for the 10 iter explain why J pay for the 10	30.00 and believes he has enough money to pay ms. In the space below, use estimation to show or ordan most likely does <u>not</u> have enough money to ) items.
Explanation:	

In his math class, Rodrigo simplified an algebraic expression, as shown below.		
Expression	2 + 6(5 + 4) ÷ 3	
Step 1	8(5+4) ÷ 3	
Step 2	8(9) ÷ 3	
Step 3	72 ÷ 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

## **<u>Geometry</u>** - 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



**Geometry** - Apply transformations and use symmetry to analyze mathematical situations



## 8M2

**Measurement** - Apply appropriate techniques, tools, and formulas to determine

perimeter, area or volume

Part A. Ra be lik Part B. W	achel used all 18 cubes to b low, draw a picture of whate, and write the dimension	build the prism. In the space at Rachel's prism could look ns of the prism.
Part B. W		
SI	hat is the surface area of t ew in Part A? Write your a now or explain how you go	the rectangular prism you nswer in the space below. t your answer.
Surface Ar	ea in Square Inches:	

## 8A1

Algebra - Understand patterns, relations, and functions

What value of <i>d</i> will make the following equation true?	
<i>d</i> - 12 = 36	
A -3	
B 14	
C 24	
D 48	

A home-improvement center rents power washers to customers for a onetime 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 + 5hWhat is the total charge to rent a power washer for 4 hours? A \$20 B \$24 C \$35 D \$80

#### 8A2

## <u>Algebra</u> - 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? A  $\cdot m - 1.8$ B  $\cdot m + 1.8$ C  $\cdot 1.8m$ D  $\cdot \frac{m}{1.8}$ 

## 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.