Ohio | Department of Education

STUDENT READINESS ASSESSMENT ITEM RELEASE GUIDE STUDENT EDITION GRADE 6 MATHEMATICS

Grade 6
Reporting Category

Ratio and Proportions

CRITICAL AREA OF FOCUS #1
Connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems

Question _____

Farrah has 150 dimes, 250 nickels, and 400 pennies.

Complete the table to show the ratio of the number of pennies to the total number of coins.

	:	

Question _____

Jason makes a fruit salad using only strawberries and blueberries.

The ratio of strawberries to blueberries in Jason's fruit salad is 4 cups to 5 cups.

Which statement describes the contents of Jason's fruit salad?

Ⓐ Strawberries make up $\frac{4}{5}$ of the fruit salad.

Ⓑ Blueberries make up $\frac{5}{9}$ of the fruit salad.

Ⓒ There are 5 strawberries for every 4 blueberries.

Ⓓ There is always 1 more cup of blueberries than strawberries.

Question _____

Hannah planted flowers next to the school playground. She planted 2 daisies, 3 sunflowers and 4 tulips.

What is the ratio of the number of daisies she planted to the total number of flowers she planted?

Ⓐ 2:3

Ⓑ 2:4

Ⓒ 2:7

Ⓓ 2:9

Question _____

Which statement describes a unit rate?

(A) Alex eats 3 apples.

(B) Kyle runs 3 miles over 2 days.

(C) Zack reads 3 pages of his book per minute.

(D) Michael adds 3 cups of sugar for every 2 cups of flour.

Question _____

A cell phone plan offers 250 minutes each month for $15.00 per month.

What is the cost per minute when a person uses all 250 minutes in a month?

(A) $ 0.06

(B) $ 0.60

(C) $ 3.60

(D) $16.67

Question _____

Evelyn borrowed $30 from her mother to buy a sweater. After 3 weeks of babysitting, she pays her mother back $24.

What percent of the debt has Evelyn paid her mother back?

_____ %

Question _____

A bakery has three types of pie: apple, cherry, and peach. There are 4 times as many apple pies as peach pies.

What is a possible percentage for each type of pie?

Apple: _____ %

Cherry: _____ %

Peach: _____ %

1	2	3
4	5	6
7	8	9
	0	
.	-	$\frac{\square}{\square}$

Question _____

The theater club spends $1,197 for 63 student tickets.

What is the rate per student that the club spends on tickets?

$ _____ *per student*

1	2	3
4	5	6
7	8	9
	0	
.	-	$\frac{\square}{\square}$

Question ____

This item has three parts.

Rosa and Peng both start walking at the beginning of a 1.5-mile trail.

Part A. What is the length, in yards, of the trail?

yards

1	2	3
4	5	6
7	8	9
	0	
.	-	

Part B. Rosa and Peng measure the distance they walk in 3 minutes. Rosa walks 396 yards, and Peng walks 330 yards. They will continue to walk at these speeds along the trail.

Complete the table to show how far, in yards, each person would walk.

Number of Minutes	Distance Rosa Walks (yards)	Distance Peng Walks (yards)
3	396	330
8		
13		

Part C. Rosa finishes the trail first. How long, in minutes (min), does she have to wait for Peng to finish?

min

1	2	3
4	5	6
7	8	9
	0	
.	-	

Question _____

A printer prints 75 pages in 5 minutes.

At the same rate, how many pages does the printer print in 7 minutes?

Question _____

In a town there are 1,050 people who can vote. There were two candidates in the election for the town's mayor. The results of the election are shown in the table.

Candidate	Votes
Ms. Smith	462
Mr. Jones	378

What percentage of the 1,050 people actually did vote in the election?

Ⓐ 20% of people who can vote

Ⓑ 45% of people who can vote

Ⓒ 55% of people who can vote

Ⓓ 80% of people who can vote

Question _____

The ratio of the weight of cement to the weight of sand in a concrete mixture is 1:3.

Complete the table to show different weights of cement or sand in the concrete mixture.

Pounds of Cement	Pounds of Sand
1	3
2	
	12
9	

Grade 6
Reporting Category:

Expressions and Equations

CRITICAL AREA OF FOCUS #2
Completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers

Question _____

An expression is shown.

$95 - 3^4$

What is the value of the expression?

Question _____

What is the value of 3^4?

Question _____

An expression is given.

$5(x - 1)$

What is the value of the expression when $x = 5$?

Question _____

Which expression represents "one-half of x"?

Ⓐ $x \bullet 2$

Ⓑ $x \div 2$

Ⓒ $x - \frac{1}{2}$

Ⓓ $x + \frac{1}{2}$

Question _____

The expression $c(16x + 14)$ is equivalent to $32x + d$.

What are the values of c and d?

$c =$

$d =$

Question _____

Which expression is equivalent to $\frac{1}{3}(9x + 12) + 4x + 6$?

Ⓐ $7x + 18$

Ⓑ $7x + 10$

Ⓒ $\frac{13}{3}x + 6$

Ⓓ $13x + 18$

Question _____

Select the **three** inequalities that have $n = 3$ in the solution set.

- [ ] $n + 5 < 9$
- [ ] $\frac{1}{3}n < 1$
- [ ] $3n + 1 > 7$
- [ ] $3n > 9.5$
- [ ] $n - 2 < 5$
- [ ] $6n + 3 > 21$

Question _____

Julie is using the set $\{7, 8, 9, 10, 11\}$ to solve the inequality shown.

$2h - 3 > 15$

Select all of the solutions to the inequality.

- [ ] 7
- [ ] 8
- [ ] 9
- [ ] 10
- [ ] 11

Question _____

An equation is given.

$2x = 26$

Which calculation would need to be done to solve the equation?

Ⓐ divide both sides by 2

Ⓑ divide both sides by 26

Ⓒ multiply both sides by 2

Ⓓ multiply both sides by 26

Question _____

An equation is shown.

$x + 3 = 8.5$

What is the solution to the equation?

$x =$

Question _____

Brian has 14 bins and 70 books. He places the same number of books, x, in each bin.

Which equation could be used to find the number of books in each bin, x?

(A) $14 = \frac{x}{70}$

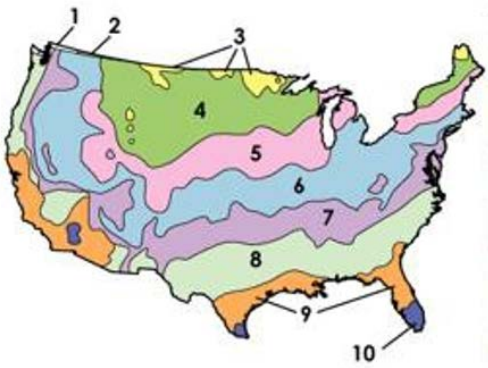
(B) $70 = 14x$

(C) $14 = 70 - x$

(D) $70 = 14 + x$

Question _____

The map and table shown are used to identify planting zones required for plants in the United States.



Planting Zone	Average Annual Low (°F)
1	−54°
2	−43°
3	−37°
4	−26°
5	−16°
6	−7°
7	1°
8	13°
9	21°
10	33°

In any planting zone, plants require a temperature warmer than the average annual low.

Create an inequality for the temperature, t, in degrees Fahrenheit, required for plants in zone 6.

Question _____

Nikki and Dave both work as cleaners. The equation shown models the total amount, n, in dollars that Nikki charges to clean carpets in r rooms.

$n = 20r$

The table shows the total amount, d, in dollars that Dave charges to clean windows in r rooms. He charges the same amount per room to clean windows.

Complete the table to show the amount that each person charges to clean r rooms.

Number of Rooms (r)	Nikki's Charges (n)	Dave's Charges (d)
1		12.50
2		
3		
4		50

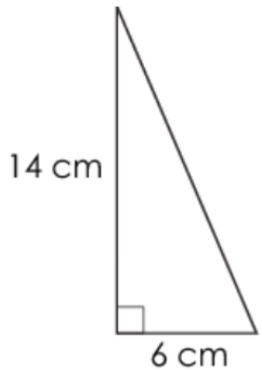
Grade 6
Reporting Category:

Geometry and Statistics

CRITICAL AREA OF FOCUS #3
Writing, interpreting, and using expressions and equations

Question _____

A right triangle is shown.

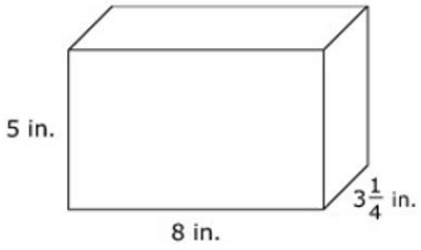


What is the area, in square centimeters (cm^2), of the right triangle?

cm^2

Question _____

A right rectangular prism is shown.



What is the volume, in cubic inches, of the prism?

cubic inches

Question _____

A figure has vertices at (−2, 2), (−2, 6), (6, 6), and (6, 2).

Which shape best describes the figure?

Ⓐ a rectangle

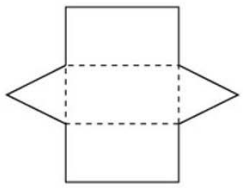
Ⓑ a trapezoid

Ⓒ a rhombus

Ⓓ a square

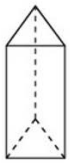
Question _____

A net is shown.

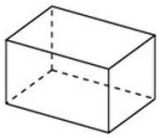


Which three-dimensional figure is represented by the net?

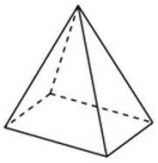
Ⓐ



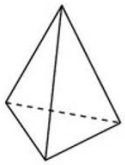
Ⓒ



Ⓑ



Ⓓ



Question _____

Gary surveys all of his classmates for a project.

Select the **two** statistical questions that Gary could ask.

- [ ] How old is your school?
- [ ] How many pets do you have?
- [ ] What is your favorite flavor of ice cream?
- [ ] How many states are in the United States?
- [ ] In what year was the Declaration of Independence signed?

Question _____

Farrah collects data on the number of letters in the names of several of her classmates. Her data are shown.

9, 5, 7, 6, 6, 9, 5, 5, 8, 8

What does the median tell Farrah about her data?

(A) The data have a symmetrical shape.

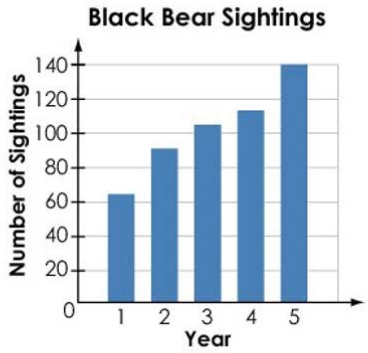
(B) A typical name has more than 9 letters.

(C) Half of the names have fewer than 7 letters.

(D) There is a variation of 4 letters in the names.

Question _____

Scientists record the number of black bear sightings in an area over 5 years. Their data are shown on the graph.



What does the mean of this data set describe?

Ⓐ the average number of sightings each year over the 5-year period

Ⓑ the difference between the number of sightings each year

Ⓒ the total number of sightings over the 5-year period

Ⓓ the actual number of sightings each year

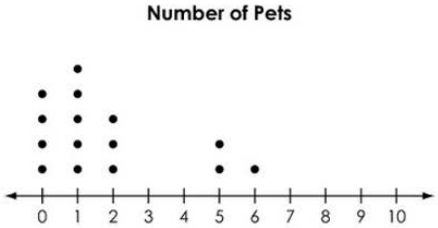
Question _____

The results of a class survey of how many pets each student has are shown.

1	0	3	2	2	0
1	1	1	2	0	5
1	2	1	0	3	2

Which dot plot represents the results?

Ⓐ



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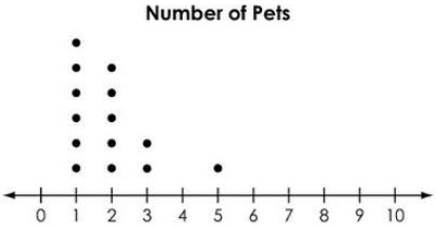
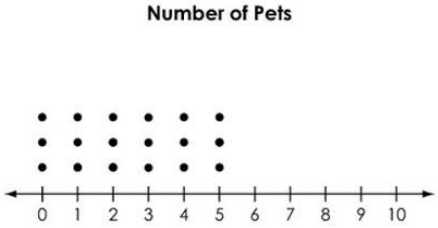
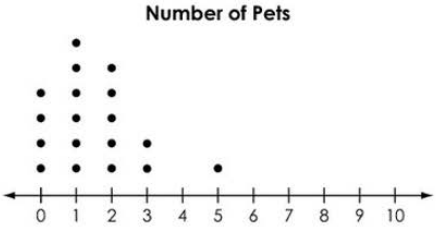


Ⓑ

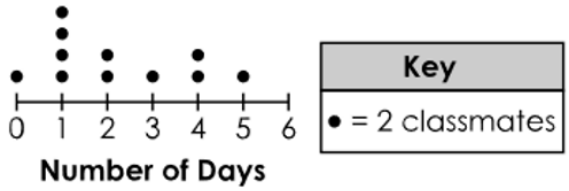


Ⓓ



Question _____

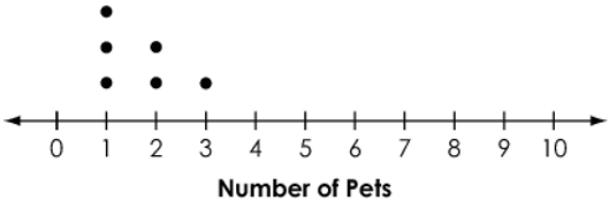
Zoe surveys her classmates on the number of days they went to a park the previous week. She records all of her results on the dot plot shown.



How many classmates did Zoe survey?

Question _____

Andrea collects data from her classmates about the number of pets they have. Then, she creates the dot plot shown.



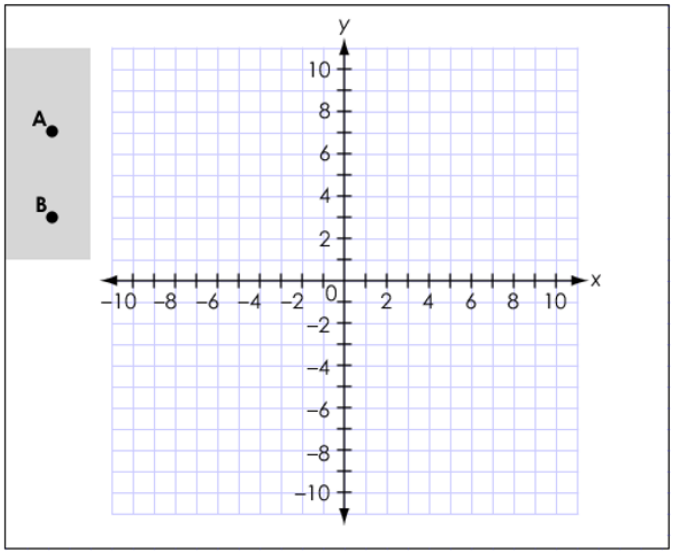
She is missing one value and knows that the range for the data is 5.

What is the missing value?

Question _____

Point A is located at (x, y), where $x \neq 0$ and $y \neq 0$. Point B is located at $(-x, y)$.

Place points A and B at possible locations on the coordinate grid.



Grade 6
Reporting Category:

The Number System

CRITICAL AREA OF FOCUS #4
Developing understanding of statistical problem solving

Question _____

Nadya has $19\frac{1}{4}$ yards of ribbon. She cuts the ribbon into pieces that each measure $1\frac{3}{4}$ yards.

How many pieces of ribbon does Nadya have?

Question _____

An expression is shown.

$\frac{10}{3} \div 4$

What is the value of the expression?

Question _____

A container has $17\frac{1}{2}$ cups of lemonade. Asher gives each of his classmates $\frac{5}{6}$ of a cup of lemonade. He gives away all of the lemonade.

How many classmates does Asher give lemonade to?

Question _____

An expression is given.

$26{,}091 \div 13$

What is the value of the expression?

Question _____

An expression is shown.

$4.8 \bullet 2 + 3.2$

What is the value of the expression?

Question _____

On Monday, the temperature was -7 degrees Fahrenheit in Akron, Ohio.

On Tuesday, the temperature was colder than on Monday.

What is a possible temperature, in degrees Fahrenheit, for Tuesday?

degrees Fahrenheit

Question _____

Luis and Erin are playing a game. They each start with 0 points. At the end of the game, Luis has 250 points, and Erin has -250 points.

Which statement about the game is true?

Ⓐ Erin has lost 250 points.

Ⓑ Luis has 250 more points than Erin.

Ⓒ Erin and Luis have a total of 500 points.

Ⓓ Erin and Luis have an equal number of points.

Question _____

What is the opposite of -3.2?

Question _____

Which number is the farthest from −2 on the number line?

Ⓐ 6

Ⓑ 0

Ⓒ −1

Ⓓ −9

Question _____

Which point is in the same quadrant as the point (−1, 4)?

Ⓐ (2, 3)

Ⓑ (−2, 3)

Ⓒ (2, −3)

Ⓓ (−2, −3)

Question _____

The three inequalities shown relate rational numbers a, b, and c.

- $a < b$
- $b < c$
- $|b| > |c|$

What are possible values of a, b, and c?

$a =$

$b =$

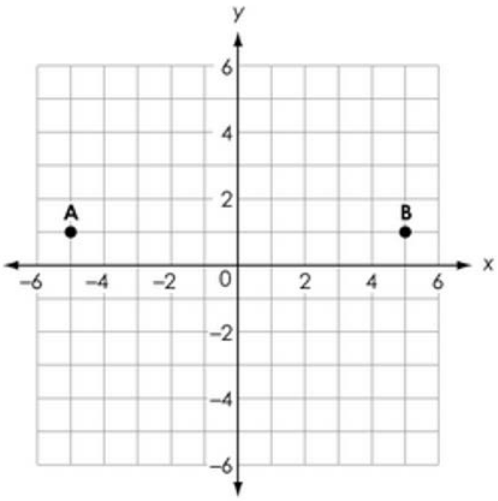
$c =$

Question _____

What is the distance between (3, 10) and (3, −8) on a coordinate grid?

Question _____

Points A and B are shown.



What is the distance, in units, between point A and point B?

Question _____

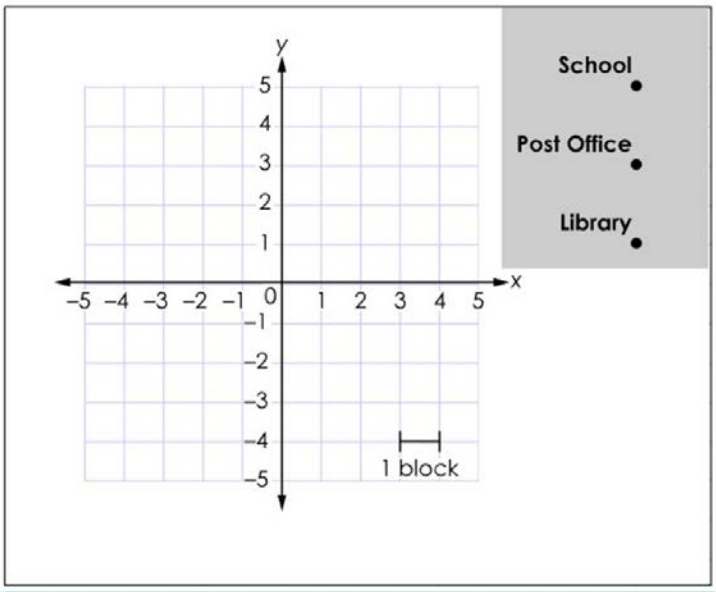
This item has two parts.

Part A. Jasmine creates a map of her town on the coordinate plane. The unit on the coordinate plane is one block.

The locations of the school, post office, and library are given.

- school (–4, 1)
- post office (2, 1)
- library (2, –4)

Move each building to its correct location on the coordinate plane.



Part B. Jasmine walks from the school to the post office and then to the library.

What is the total distance, in blocks, of her walk?