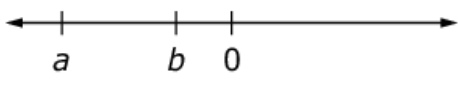


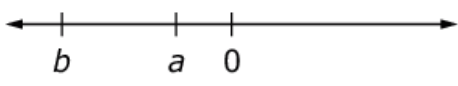
## Grade 7 Math Sample Test

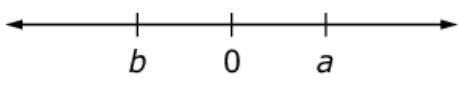
Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
1	NS	7.NS.A	7.NS.A.1	2, 4, 7	3

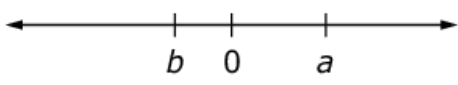
Gary is thinking of three numbers,  $a$ ,  $b$ , and  $c$ , where  $b - a = c$  and  $c < 0$ .

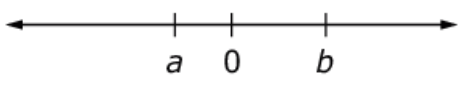
Select all of the number lines that could represent Gary's numbers.

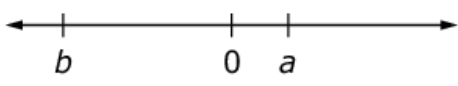












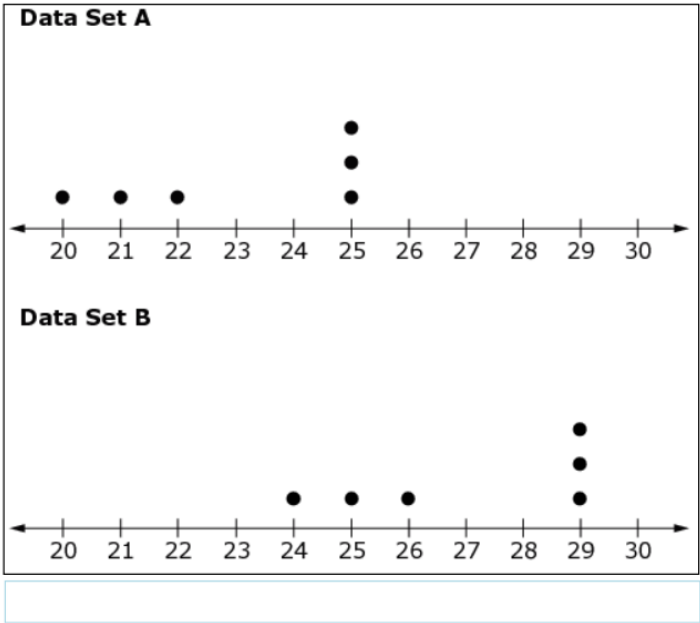
**(1 Point)** Student selected the four correct number lines.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
2	SP	7.SP.B	7.SP.B.3	1, 2, 3, 4, 5, 6, 7	3

Data Set A is shown.

Data Set A and Data Set B have the same mean absolute deviation. Data Set B has 6 elements.

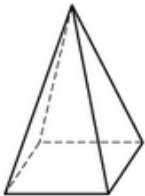
Create Data Set B so that the mean is 2 mean absolute deviations larger than the mean for Data Set A. Click above the number line to create this data set.



**(1 Point)** Student created a correct data set.




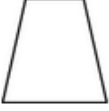

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
3	GEO	7.G.A	7.G.A.3	2, 4, 5, 7	2

A square pyramid is shown.



The pyramid can be sliced horizontally or vertically.

Select all of the shapes that could represent the cross section of the pyramid.

- 
- 
- 
- 
- 

**(1 Point)** Student selected the three correct shapes.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
4	EE	7.EE.B	7.EE.B.4	1, 2, 3, 4, 5, 6, 7, 8	2

A bowling alley charges  $x$  dollars per guest and a fixed \$50 rental fee for parties. Which equation represents the total cost,  $y$ , for 9 guests?

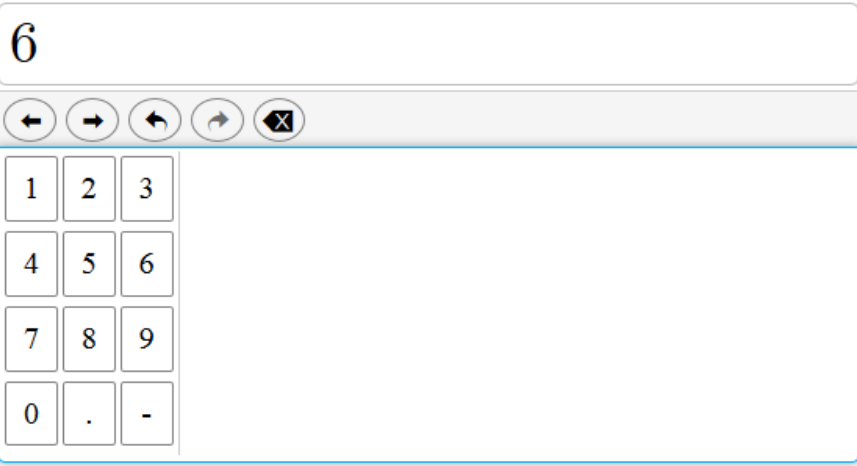
- A  $y = 9x$
- B  $y = 9x + 41$
- C  $y = 9x + 50$
- D  $y = 50x + 9$

**(1 Point)**

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
5	GEO	7.G.B	7.G.B.4	1, 2, 3, 4, 5, 6, 7, 8	2

The circumference of a circle is 18.84 inches.  
What is the diameter of the circle, to the nearest inch?

6



**(1 point)** Student entered 6; any value between 5.99 and 6, inclusive.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
6	EE	7.EE.B	7.EE.B.3	1, 2, 3, 4, 5, 6, 7, 8	2

Raquel is building a shelf for her wall. The length of the wall is 11 feet 3 inches. The shelf will be built on the center of the wall, and the length of the shelf will be  $\frac{1}{3}$  the length of the wall.

What is the distance, in inches, from the edge of the wall to the edge of the shelf?

45

← → ↶ ↷ ✕

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

**(1 point)** Student entered 45 or any equivalent value.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
7	EE	7.EE.B	7.EE.B.4	1, 2, 3, 4, 5, 6, 7, 8	2

One apple costs \$0.55 at the grocery store. Customers receive one free apple for every 8 apples that they buy. Anna paid a total of \$8.80 for her apples.

How many free apples did Anna receive?

2

← → ↶ ↷ ✕

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

**(1 Point)** Student entered 2 or any equivalent value.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
8	NS	7.NS.A	7.NS.A.2	2, 4, 7	2

Which expression is equivalent to  $\frac{-3}{4} \cdot \frac{7}{-2} \div \frac{3}{-8}$ ?

Ⓐ  $\frac{-1}{2} \cdot \frac{7}{-2}$

Ⓑ  $\frac{1}{2} \cdot \frac{7}{-2}$

Ⓒ  $\frac{2}{1} \cdot \frac{7}{-2}$

Ⓓ  $\frac{2}{1} \cdot \frac{7}{2}$

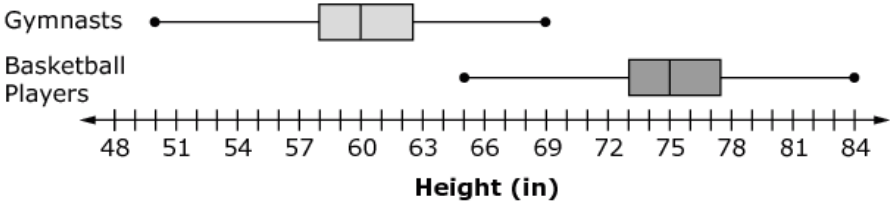
**(1 point)**



Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
9	SP	7.SP.B	7.SP.B.3	1, 2, 3, 4, 5, 6, 7	2

The box plot shows a comparison of the heights of gymnasts and basketball players. The mean absolute deviation for each group is approximately 2.

**Heights of Gymnasts and Basketball Players**



How many mean absolute deviations describe the difference between the two medians?

7.5

← → ↶ ↷ ✕

1	2	3	+	-	•	÷				
4	5	6	<	≤	=	≥	>			
7	8	9	$\frac{\square}{\square}$	$\square^\square$	( )		$\sqrt{\square}$	$\sqrt[\square]{\square}$	$\pi$	
0	.	-								

**(1 point)** Student entered 7.5 or any equivalent value.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
10	RPR	7.RP.A	7.RP.A.1	2, 6	2

Dana walks  $\frac{3}{4}$  mile in  $\frac{1}{4}$  hour.

What is Dana's walking rate in miles per hour?

3

A digital calculator interface is shown below the input field. It features a top row of navigation buttons: left arrow, right arrow, undo, redo, and a clear button (X). Below these is a numeric keypad with a 4x3 grid of buttons containing the digits 1 through 9, 0, a decimal point (.), and a negative sign (-).

**(1 Point)** Student entered 3 or any equivalent value.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
11	EE	7.EE.A	7.EE.A.2	2, 6, 7, 8	3

Rafi has \$48.00 to spend on games. Each game costs \$3.00. He writes the expression shown to represent the amount of money he has after purchasing  $g$  games.

$$48 - 3g$$

He writes an equivalent expression as shown.

$$3(16 - g)$$

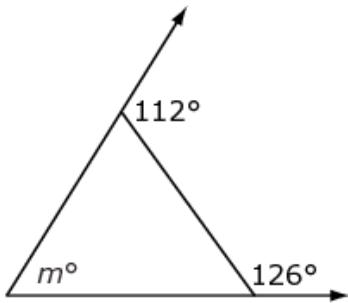
What does the number 16 represent in the equivalent expression?

- the total number of games Rafi can buy
- $\frac{1}{3}$  of the number of games Rafi can buy
- the amount of money Rafi has after buying  $g$  games
- the amount of money Rafi has after buying 3 games

**(1 point)**

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
12	GEO	7.G.B	7.G.B.5	3, 4, 5, 6, 7	2

A figure is shown.



What is the value of  $m$ ?

58



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

**(1 point)** Student entered 58 or any equivalent value.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
13	SP	7.SP.C	7.SP.C.6	1, 2, 3, 4, 5	2

Charmaine observes the number of times the 5:00 p.m. train is early, late, and on time. She records her observations of the train for 80 days in a row in the table shown.

<b>Early</b>	23 times
<b>Late</b>	9 times
<b>On Time</b>	48 times

Based on Charmaine’s data, how many trains are likely to be late over the next 400 days?

45

← → ↶ ↷ ✕

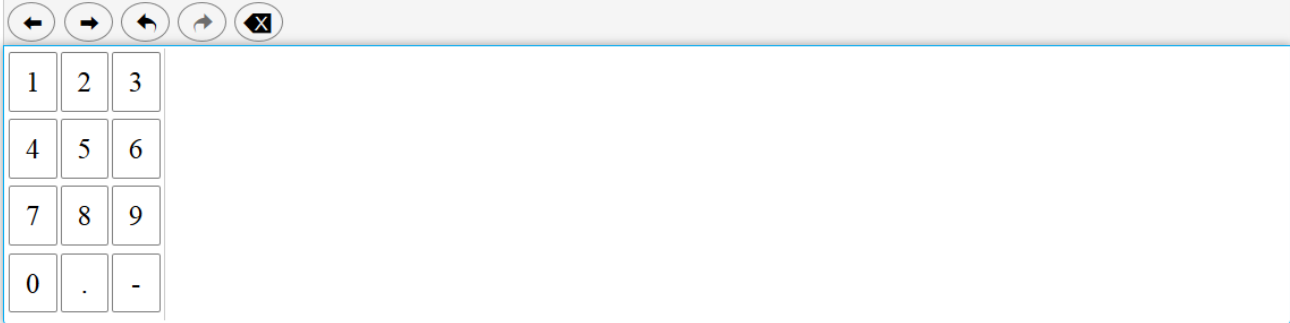
1	2	3
4	5	6
7	8	9
0	.	-

**(1 point)** Student entered 45 or any equivalent value.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
14	RPR	7.RP.A	7.RP.A.3	1, 2, 3, 4, 5, 6, 7, 8	3

Jackson buys a new shirt. The shirt is 25% off of the original price. Jackson pays a total of \$11.34 for the shirt, which includes a sales tax of 8%.

What is the original price, in dollars, of the shirt?

**(1 point)** Student entered 14.00 or any equivalent value.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
15	NS	7.NS.A	7.NS.A.3	1, 2, 5, 6, 7, 8	3

The total change in the water level of a lake from the beginning of April to the end of August was  $-4.7$  inches. The table shows the changes in the water level from the beginning to the end of several months.

Complete the table to show possible changes in the water level, in inches, for July and August.

Month	Water Level Change (inches)
April	3.5
May	1.1
June	$-4.3$
July	<input type="text" value="-2.6"/>
August	<input type="text" value="-2.4"/>
<b>Total Change</b>	<b><math>-4.7</math></b>

**(1 point)** Student completed the table with all correct values.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
16	SP	7.SP.C	7.SP.C.5	4, 5, 6, 7	1

A box is filled with different-colored markers. When a marker is chosen randomly from the box, it is likely that the marker will be blue.

Select all of the possible probabilities that a randomly selected marker will be blue.

0

$\frac{1}{3}$

$\frac{2}{3}$

$\frac{3}{4}$

1

$\frac{3}{2}$

**(1 point)** Student selected the two correct probabilities.



Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
17	RPR	7.RP.A	7.RP.A.2	1, 2, 3, 4, 5, 6, 7, 8	2

A furniture factory makes 250 tables each day.

Create an equation that can be used to find the total number of tables made,  $y$ , after  $x$  days.

$y=250x$

← → ↶ ↷ ✖

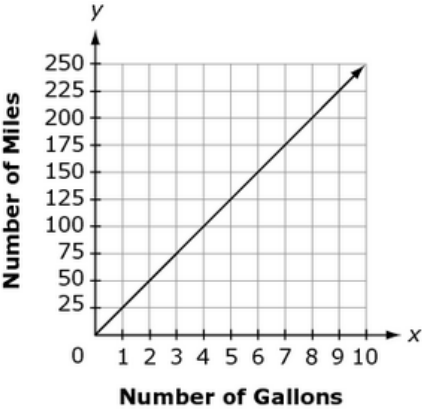
1	2	3	$x$	$y$						
4	5	6	+	-	•	÷				
7	8	9	<	≤	=	≥	>			
0	.	-	$\frac{\square}{\square}$	$\square^\square$	( )		$\sqrt{\square}$	$\sqrt[\square]{\square}$	$\pi$	

**(1 Point)** Student entered  $y = 250x$  or any equivalent equation.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
18	RPR	7.RP.A	7.RP.A.2	1, 2, 3, 4, 5, 6, 7, 8	3

Igor’s car travels 25 miles on a gallon of gas. The car’s gas tank has a capacity of 10 gallons. The distance Igor can travel is shown in the graph.

**Distance Igor Can Travel**



Before his trip, Igor stops at a gas station where 10 gallons of gas costs \$41.90. His gas tank is already  $\frac{2}{5}$  full and he spends \$16.76 on gas.

What is the maximum distance, in miles, Igor can travel with the gas he now has in his tank?

200

← → ↶ ↷ ✖

1	2	3	+	-	•	÷				
4	5	6	<	≤	=	≥	>			
7	8	9	$\frac{\square}{\square}$	$\square^\square$	( )		$\sqrt{\square}$	$\sqrt[\square]{\square}$	$\pi$	
0	.	-								

**(1 point)** Student entered 200 or any equivalent value.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
19	SP	7.SP.C	7.SP.C.7	1, 2, 3, 4, 5, 6, 7, 8	1

A fair cube has 2 blue sides, 2 red sides, and 2 green sides.  
What is the probability of rolling a blue or red side?

$$\frac{4}{6}$$

**(1 point)** Student entered  $\frac{4}{6}$  or any equivalent value.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
20	NS	7.NS.A	7.NS.A.1	2, 4, 7	2

Select one phrase that describes the sum or difference of each expression.

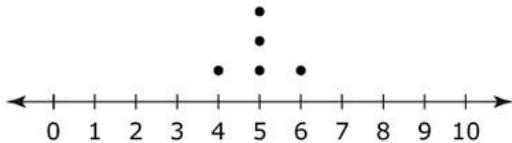
	Greater than zero	Less than zero	Equal to zero
$7 - (-7)$	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
$7 + (-7)$	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
$(-7) + (-7)$	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
$(-7) - 7$	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**(1 point)** Student selected the correct phrase for each example.

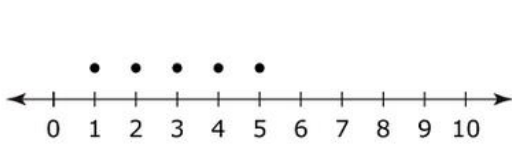
Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
21	SP	7.SP.B	7.SP.B.4	1, 2, 3, 4, 5, 6, 7	3

Which pair of data sets provides no evidence that the values of Set A are greater than the values of Set B?

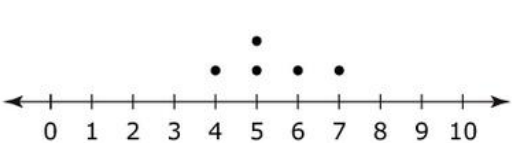
A Set A:



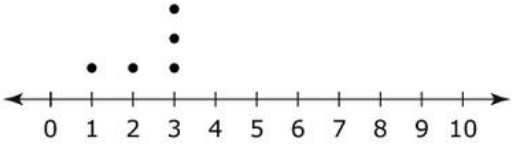
Set B:



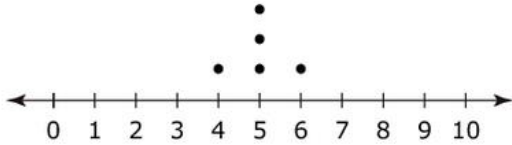
C Set A:



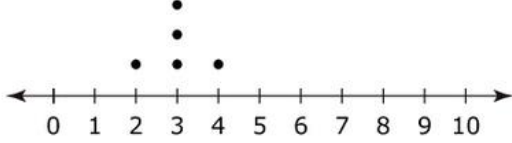
Set B:



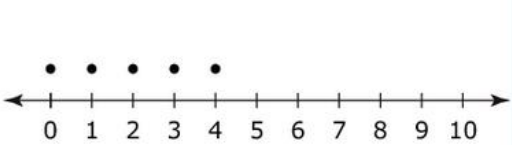
B Set A:



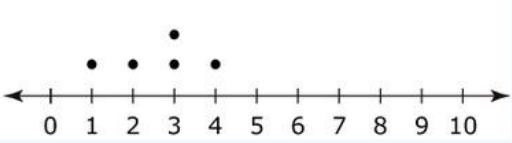
Set B:



D Set A:



Set B:



**(1 Point)**

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
22	EE	7.EE.A	7.EE.A.1	2, 6, 7	2

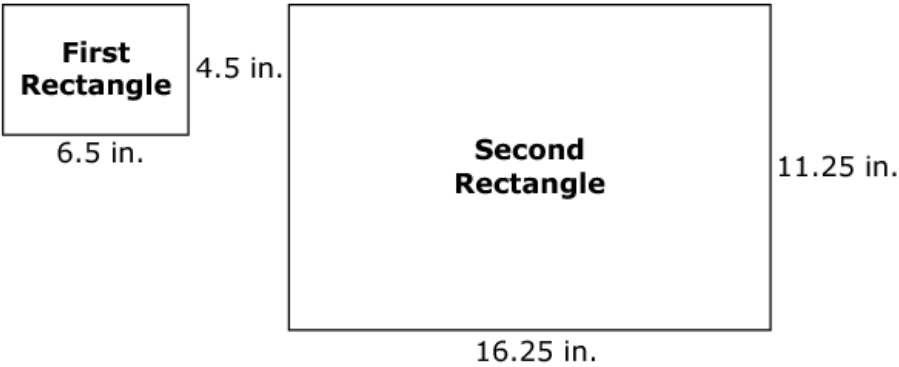
Which expression is equivalent to  $\frac{3}{5}(5n - 12) - \frac{1}{4}(3n + 16)$ ?

- Ⓐ  $2\frac{1}{4}n - 3\frac{1}{5}$
- Ⓑ  $2\frac{1}{4}n - 11\frac{1}{5}$
- Ⓒ  $3\frac{3}{4}n - 3\frac{1}{5}$
- Ⓓ  $3\frac{3}{4}n + 11\frac{1}{5}$

**(1 point)**

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
23	GEO	7.G.A	7.G.A.1	1, 2, 3, 4, 5, 6, 7, 8	2

Angelo drew the two rectangles shown. The second is a scale drawing of the first.



What scale factor did Angelo use to draw the second rectangle?

2.5

← → ↶ ↷ ✕

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

**(1 point)** Student entered 2.5 or any equivalent value.

Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
24	GEO	7.G.A	7.G.A.2	4, 5, 6, 7, 8	2

Use the Connect Line tool to draw an acute scalene triangle with a side length measuring 4 units.

The diagram shows a digital workspace with a grid. A red scalene triangle is drawn. The base of the triangle is horizontal and measures 4 units. The top vertex is 2 units above the base. The left side of the triangle is 2.5 units long, and the right side is 2.5 units long. A scale bar at the bottom right indicates 1 unit. Above the grid are three tool buttons: 'Delete', 'Add Point', and 'Connect Line'.

**(1 point)** Student created a correct triangle.



Item Number	Domain	Cluster	Content Standard	Math Practices	DOK
25	RPR	7.RP.A	7.RP.A.2	1, 2, 3, 4, 5, 6, 7, 8	1

A dance studio offers ballet and hip-hop classes. The studio has 8 ballet classes for every 12 hip-hop classes.

How many hip-hop classes are there for each ballet class?

1.5

← → ↶ ↷ ✕

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

**(1 point)** Student entered 1.5 or any equivalent value.