

Math
Spring 2019

Grade 6
Released Items

1.

M22302

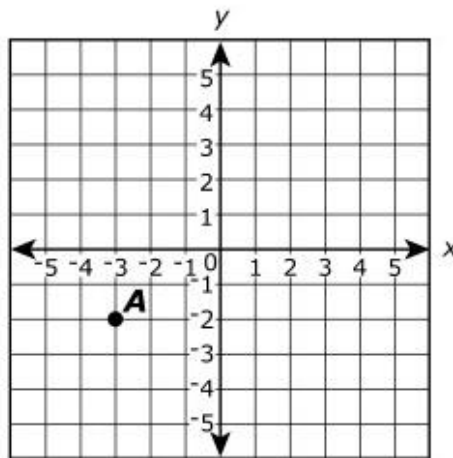
The ratio of bleach to water in a cleaning solution is 2:18. For every 1 liter of bleach, how many liters of water are in the solution?

- A. 1
- B. 2
- C. 9
- D. 18

2.

M20810P

The graph shows the location of point A.



Point B has the same x-coordinate as point A. The y-coordinate of point B has the same absolute value but the opposite sign of the y-coordinate of point A. Which ordered pair represents point B?

- A. $(-3, -\frac{1}{2})$
- B. $(-3, 2)$
- C. $(3, -\frac{1}{2})$
- D. $(3, 2)$

3.

VH083632

Which equations are true?

Select **all** that apply.

- A. $|7.25| = 7.25$
- B. $|7.25| = -7.25$
- C. $|-7.25| = |7.25|$
- D. $|-7.25| = 7.25$
- E. $|-7.25| = -7.25$

4.

M20819P

Which expressions are equivalent to $6h + 5(x + h)$?

Select **each** correct answer.

- A. $7h + 5x$
- B. $11h + 5x$
- C. $12h + x$
- D. $6h + 5x + 5h$
- E. $6(h + 5x + 5h)$

5.

M21710

A right rectangular prism is made with 8 small cubes. Each cube has an edge length of $\frac{1}{5}$ inch.



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

- A. $\frac{7}{5}$
- B. $\frac{8}{25}$
- C. $\frac{1}{125}$
- D. $\frac{8}{125}$

6.

M23068

Students conducted an experiment using these steps.

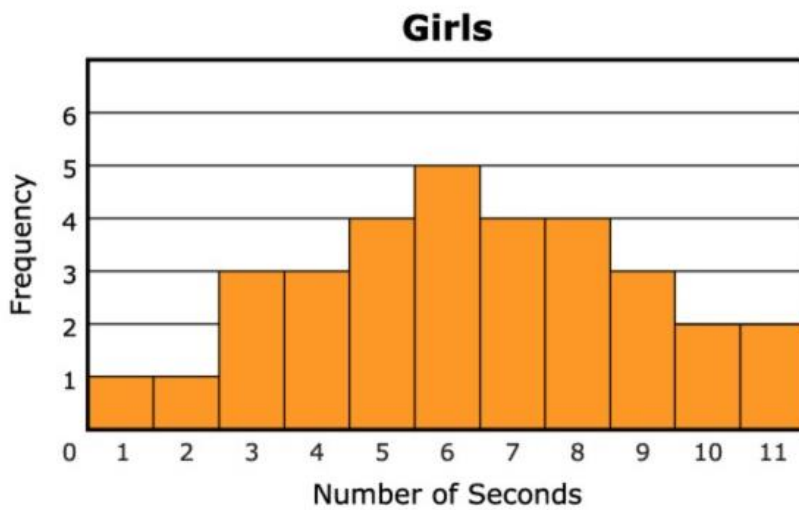
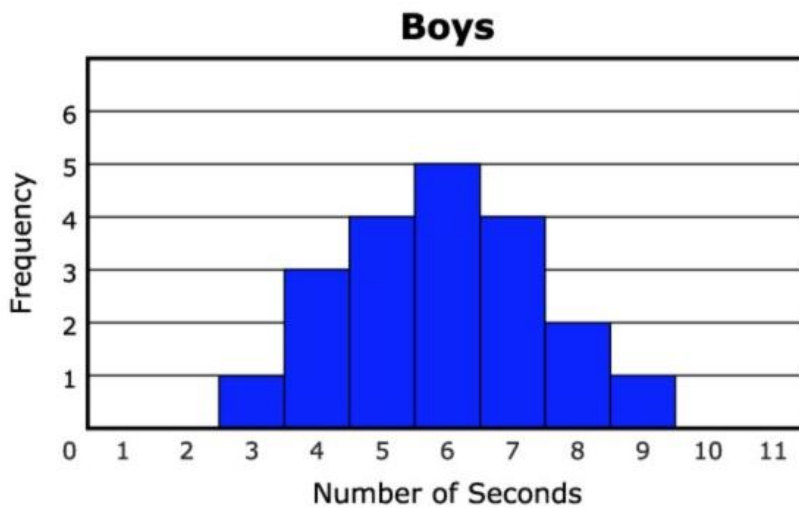
Step 1: They measured the number of seconds each student took to count forward from 0 to 100.

Step 2: They measured the number of seconds each student took to count backward from 100 to 0.

Step 3: They calculated the difference, in seconds, between counting forward and counting backward for each student.

The two histograms show the differences, in seconds, for the boys and for the girls.

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Which phrases make each sentence true?

Select from the drop-down menus to correctly complete each sentence.

The center of the boys' data is the center of the girls' data. The

spread of the boys' data is the spread of the girls' data. The

7.

M21713

A contractor had \$3,285 to spend for doors and hammers. Doors cost \$75 each. He bought the greatest number of doors that he could buy. He will use the money he has remaining to buy hammers that cost \$15 each. What is the greatest number of hammers the contractor can buy with the money he has remaining?

- A. 4
- B. 5
- C. 43
- D. 60

8.

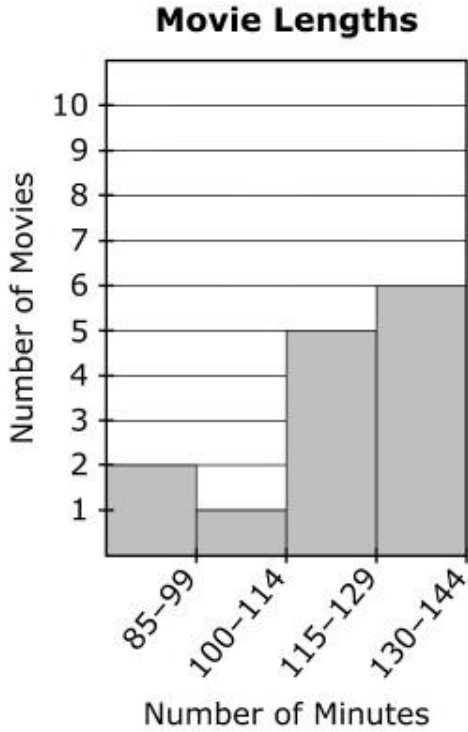
VH013388

The lengths, in minutes, of the 14 movies currently showing at a movie theater are shown in the data set.

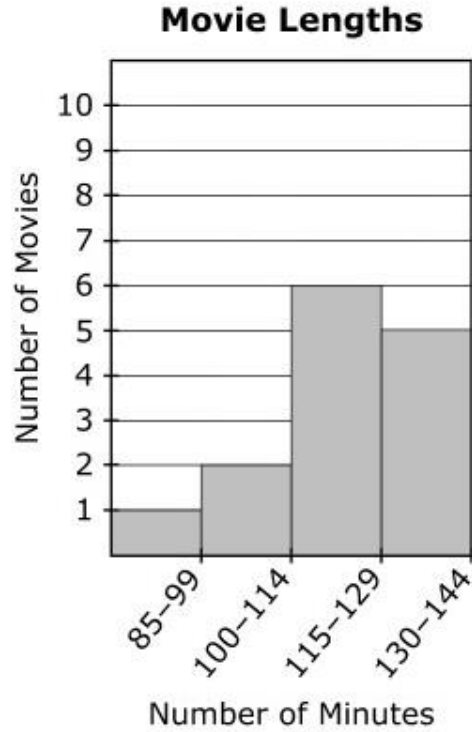
89 98 109 123 123 125 125
128 130 135 137 140 143 143

Which histogram correctly represents this data?

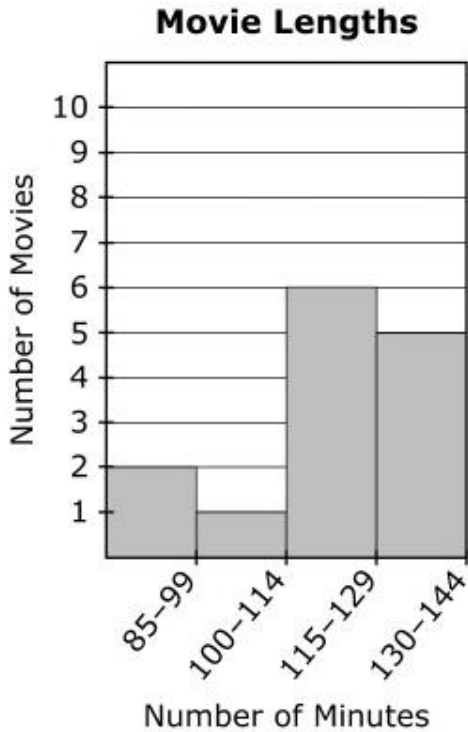
A.



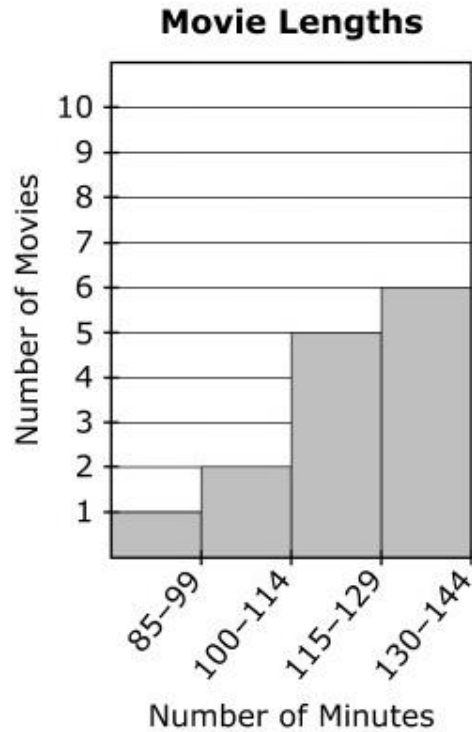
B.



C.



D.



9.

M25394

A business owner buys lunch for employees once every month. The owner has bought lunch for 18 employees for the last three months and the total costs are shown.

First month: \$147.98

Second month: \$152.17

Third month: \$165.63

- Write an equation that can be used to estimate y , the average monthly cost, in dollars, to buy lunch for x employees.
- Use your equation to estimate the total cost of a monthly lunch for 26 employees. Show your work or explain your response.

Enter your answer, your equation, and your work or explanation in the space provided.



▼ Math symbols

+	-	×	÷
±	-	·	/
=	≠	≡	≡
y^x	$\sqrt{\quad}$	$\sqrt[3]{\quad}$	π
(·)	°	·	

► Relations

► Geometry

10.

VH228966

The table shows information about the time worked and pay earned by 4 employees at a company. Each employee earned a different amount of pay per hour.

Time Worked and Pay Earned by Employees

Employee	Number of Weeks Worked	Total Number of Hours Worked	Total Pay Earned
Employee F	4	60	\$645
Employee G	5	100	\$1,025
Employee H	2	32	\$336
Employee J	3	75	\$825

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10. (continued from previous page)

VH228966

Part A

Use this information to put the employees in order from the employee who earned the least pay per hour to the employee who earned the greatest pay per hour.

Drag and drop each name into the correct box.

Employee F

Employee G

Employee H

Employee J

Least

Greatest

Part B

Employee J worked the same number of hours each week. Determine the amount of pay, in dollars, employee J earned each week.

Enter your answer in the box.

Part C

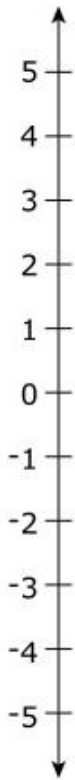
Employee G worked the same number of hours each week. Use this rate to determine the number of hours employee G would work in 9 weeks.

Enter your answer in the box.

Part D

Employee H worked the same number of hours each week. Use this rate to determine the total amount of pay, in dollars, that employee H will earn for working 5 weeks.

Enter your answer in the box.

**Part A**

Write the opposite of $-4\frac{1}{2}$ and explain how it is related to $-4\frac{1}{2}$. Use the number line as a reference in your explanation.

Enter your answer and your explanation in the space provided.



▼ Math symbols

+	-	×	÷
±	-	·	/
=	≠	≡	⊆
y^x	√	∛	π
(·)	°	·	

► Relations

► Geometry

Part B

Use the number line to think about the location of the number 2 and a number n , where n is greater than 3. Write an inequality comparing the opposite of 2 and the opposite of n . Explain how the number line shows that your inequality is correct.

Enter your inequality and your explanation in the space provided.



▼ Math symbols

+	-	×	÷
±	-	·	/
=	≠	≡	⊆
y^x	√	∛	π
(·)	°	·	

► Relations

► Geometry

The table shows the cost for a number of foam boards purchased for school projects. Each foam board costs the same amount.

Foam Boards

Number Purchased	Cost
1	
3	\$21
	\$28

Which table shows the correct cost for the number of foam boards purchased?

A. **Foam Boards**

Number Purchased	Cost
1	\$7
3	\$21
4	\$28

B. **Foam Boards**

Number Purchased	Cost
1	\$7
3	\$21
5	\$28

C. **Foam Boards**

Number Purchased	Cost
1	\$14
3	\$21
4	\$28

D. **Foam Boards**

Number Purchased	Cost
1	\$14
3	\$21
5	\$28

13.

VF643078

- Expression 1: $5(2x + 3y)$
- Expression 2: $3x + 6y + x + 3(2x + 3y)$

Are the expressions shown equivalent? Show or explain all of the steps you used to determine your answer. Use properties of operations to justify each step.

Enter your answer and your work or explanation in the space provided.



▼ Math symbols

+	-	×	÷
±	-	·	/
=	≠	$\frac{\square}{\square}$	$\frac{\square}{\square}$
y^x	$\sqrt{\quad}$	$\sqrt[3]{\quad}$	π
(·)	°	·	

► Relations

► Geometry

14.

M25356

The total cost of 3 games is \$38.97. Each game costs the same amount.

- Write an equation that can be used to determine n , the cost of 1 game.
- What is the cost, in dollars, of 1 game?

Enter your answers in the space provided. Enter **only** your answers.

Equation:

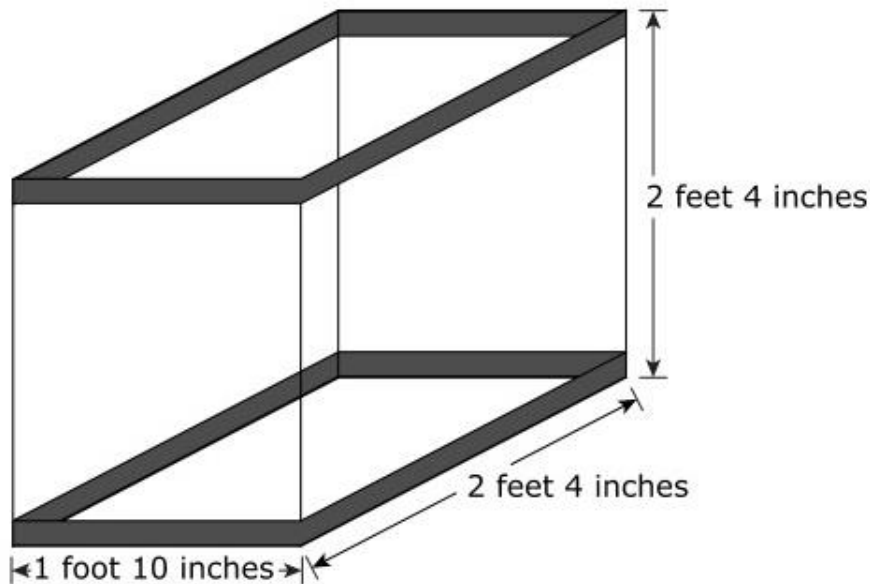
Cost: \$

↶	+	-	×	÷	$\frac{\square}{\square}$	$\frac{\square}{\square}$
↷	y^x	$\sqrt{\quad}$	$\sqrt[3]{\quad}$	=	(·)	%
🗑️						▼

15.

1298-M21432

Darren has a fish tank with the dimensions shown. He plans to purchase goldfish for his fish tank.



Part A

- Determine the dimensions, in inches, of the fish tank.
- Then find the volume, in cubic inches, of the fish tank.
- Show your work or explain your answers.

Enter your answers and your work or explanations in the space provided.



▼ Math symbols

+	-	×	÷
±	-	·	/
=	≠	≡	⊞
y^x	$\sqrt{\quad}$	$\sqrt[3]{\quad}$	π
(·)	°	·	

► Relations

► Geometry

Part B

Darren researches information about goldfish. He finds the information shown.

The recommended amount of space needed is 10 gallons for each goldfish. The volume of 1 gallon of water is 231 cubic inches.

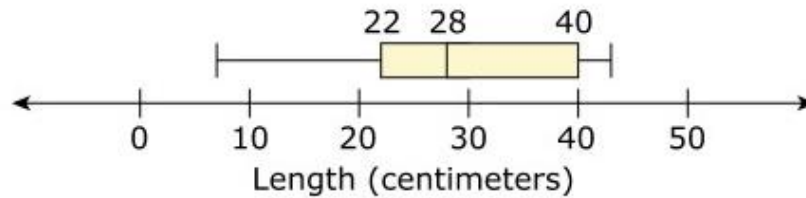
- Determine the number of gallons that the fish tank can hold.
- Then determine the maximum number of goldfish that Darren can put in the fish tank.
- Show your work or explain your answers.

Enter your answers and your work or explanations in the space provided.



	Math symbols
	$+$ $-$ \times \div
	\pm $-$ \cdot $/$
	$=$ \neq $\frac{\square}{\square}$ $\frac{\square\square}{\square\square}$
	y^x $\sqrt{\quad}$ $\sqrt[3]{\quad}$ π
	(\cdot) $^\circ$ $ \cdot $
	Relations
	Geometry

The box plot summarizes the lengths of twelve fish caught in a lake.



Part A

Which statement about the mean and median lengths of the fish caught in the lake is true?

- A. There is not enough information to determine the mean, and the median is 28 centimeters.
- B. There is not enough information to determine the mean, and the median is 31 centimeters.
- C. The mean is 28 centimeters, and there is not enough information to determine the median.
- D. The mean is 31 centimeters, and there is not enough information to determine the median.

Part B

Which statement is true about the mean absolute deviation and interquartile range of the data on the box plot?

- A. The mean absolute deviation is 6, and the interquartile range is 18.
- B. There is not enough information to determine the mean absolute deviation, and the interquartile range is 18.
- C. The mean absolute deviation is 18, and there is not enough information to determine the interquartile range.
- D. There is not enough information to determine the mean absolute deviation, and the interquartile range is 6.