

# SpiralEd Solutions

SPIRALING TO SUCCESS

GRADE 3 – ALGEBRA I

## Sample

Each grade level has six sets of Spirals, 20 Spirals per set, with 3 questions per day, an answer key, tracking document, and teacher directions.

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GRADE 3

SPIRALS 1-20

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## Spiral 1

### 1 (3.2A)

The sum of 6 ten thousands, 2 hundreds and 4 tens can be expressed as what number in standard form?

**A** 60,204

**B** 60,240

**C** 62,040

**D** 6,240

### 2 (3.2B)

What is the relationship between the thousands place and the hundreds place in the number shown?

61,110

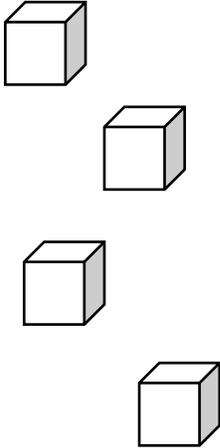
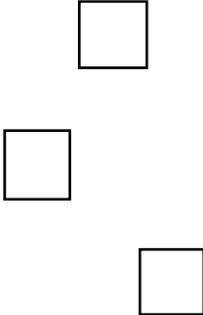
**F** The thousands place is ten times greater than the hundreds place.

**G** The thousands place is sixty times greater than the hundreds place.

**H** The hundreds place is ten times greater than the thousands place.

**J** The thousands place is six times greater than the hundreds place.

3 (3.2A) Kelsey placed blocks on a place value mat to represent a number.

Thousands	Hundreds	Tens	Ones
			

What is Kelsey's number in standard form?

- A 43,500
- B 435
- C 4,530
- D 4,350

## Spiral 2

### 1 (3.2D)

The table shows the population of four cities in Texas.

Populations

City	Population
Conroe	87,654
Temple	76,256
Bryan	85,455
Mansfield	70,981

Which comparison of these populations is true?

**F** Bryan < Conroe

**G** Temple < Mansfield

**H** Bryan < Temple

**J** Mansfield > Temple

### 2 (3.2A)

The expanded notation of a number is shown.

$$(4 \times 10,000) + (2 \times 100) + (6 \times 10)$$

What is the standard form of this number?

**A** 42,006

**B** 40,260

**C** 4,260

**D** 4,206

3 (3.2D)

The table shows the length in miles of rivers in the United States.

## U. S. Rivers

River	Length in miles
Rio Grande	1,759
Mississippi	2,202
Yukon	
Missouri	2,341
Colorado	1,450

If the length of the Yukon River is between the length of the Rio Grande and the Mississippi, what could be the length of the Yukon?

**F** 1,749

**G** 1,587

**H** 2,220

**J** 1,979

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# SpiralEd Solutions

GRADE 4 SPIRALS 21-40

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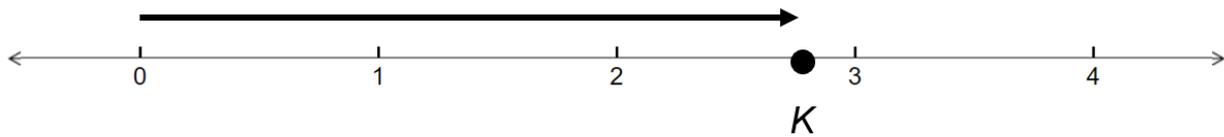
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## Spiral 26

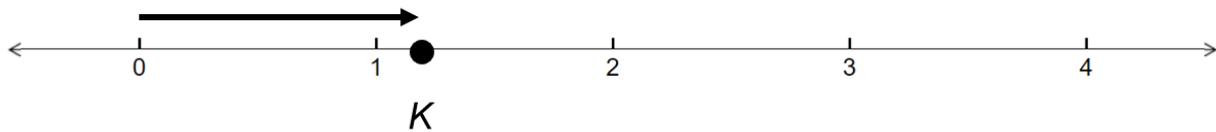
1 (4.3G)

Which number line does point K best represent a distance of 1.8 units from zero?

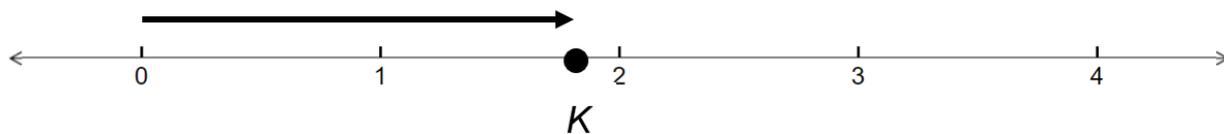
**F**



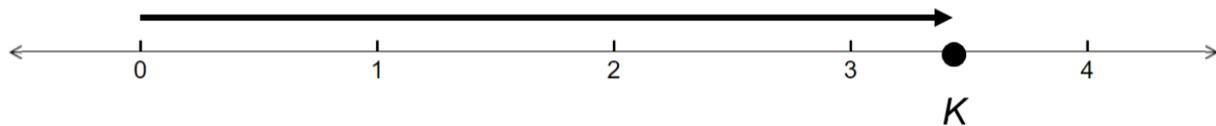
**G**



**H**

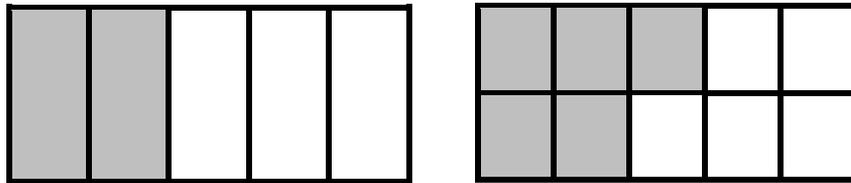


**J**



2 (4.3D)

The models are shaded to represent two fractions.



Which statement correctly compares these two fractions?

**A**  $\frac{2}{5} > \frac{5}{10}$

**B**  $\frac{2}{5} < \frac{5}{10}$

**C**  $\frac{2}{5} = \frac{5}{10}$

**D** none of these

3 (4.2C)

Which pair of numbers is NOT compared correctly?

**F**  $802,030,110 > 802,003,110$

**G**  $256,583,107 < 256,538,107$

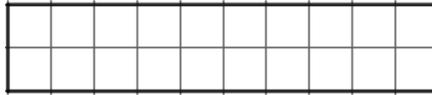
**H**  $578,359,101 < 587,359,101$

**J**  $402,333,891 > 402,333,819$

## Spiral 27

1 (4.4C)

The array represents the expression below.



$$2 \times \underline{\quad}$$

What is the missing factor?

**A** 9

**B** 10

**C** 11

**D** 8

2 (4.2F)

Devonne used the number lines below to order four numbers.

Line A



Line B



Line C



Line D



Which list shows Devonne's numbers ordered from greatest to least?

**F** Line C, Line A, Line D, Line B

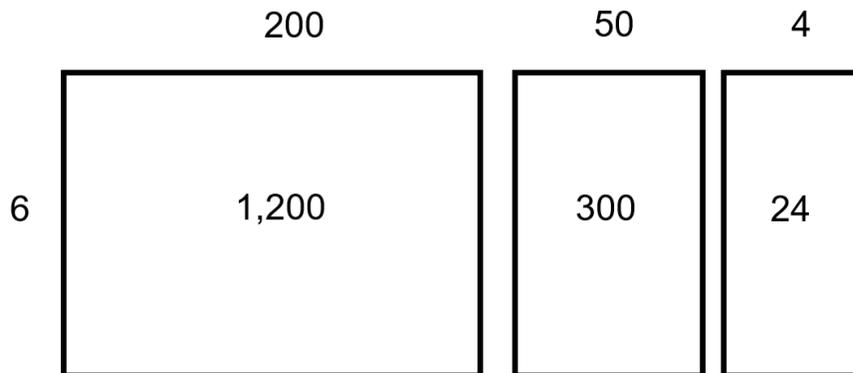
**G** Line B, Line A, Line D, Line C

**H** Line B, Line D, Line A, Line C

**J** Line C, Line D, Line B, Line A

3 (4.4E)

April used the area model to solve  $1,524 \div 6$ .



What is the April's quotient?

**A** 1,200

**B** 324

**C** 6

**D** 254

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GRADE 5

SPIRALS 41-60

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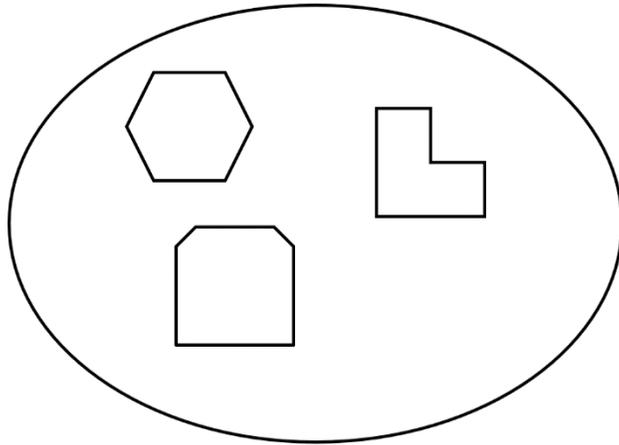
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## Spiral 41

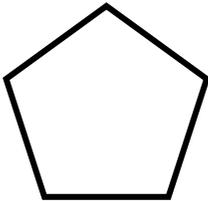
### 1 (5.5A)

Hayley and Beth sorted shapes based on their characteristics. They put these shapes inside a graphic organizer to indicate that all of the shapes share the same characteristic.

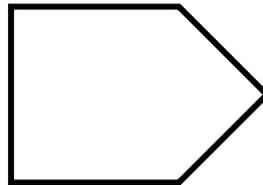


Which additional shape could the girls include in their set?

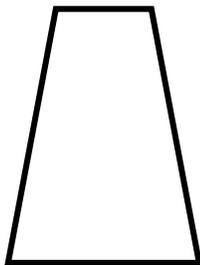
A



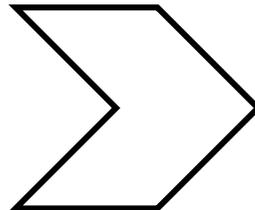
B



C



D



2 (5.7A)

Bailee's new sailboat is 15 feet long. How long is Bailee's sailboat in yards?

F 45 yards

G 5 yards

H 18 yards

J 4 yards

3 (5.3E)

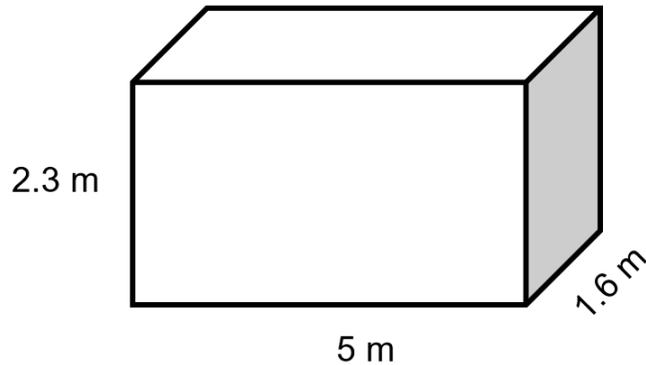
A science experiment requires 4.25 grams of salt. How much salt is needed to perform the experiment 18 times?

Record your answer and fill in the bubbles. Be sure to use the correct place value.

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

## Spiral 42

1 (5.4H)



What is the perimeter of the shaded face of the figure?

**F** 7.8 m

**G** 13.2 m

**H** 14.6 m

**J** 8 m

2 (5.3B)

What is seven more than the product of 300 and 75?

**A** 22,507

**B** 379

**C** 22,500

**D** 21,507

3 (5.4C)

Which table represents the equation  $y = x + 3.4$ .

**F**

x	0	2.2	5.5	9.9
y	3.4	5.6	8.9	13.3

**G**

x	0	3.1	5.6	8.5
y	3.4	9.9	12.4	15.3

**H**

x	10	20	25	40
y	34	68	85	136

**J**

x	0	0.2	0.5	0.9
y	0	6.4	1.7	3.06

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# SpiralEd Solutions

GRADE 6 SPIRALS 61-80

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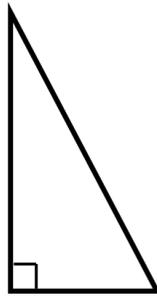
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## Spiral 65

### 1 (6.10A)

Cameron drew a right triangle and measured the base to be 3.6 cm. If the area of the triangle is 14.4 square centimeters, Cameron can use the equation  $14.4 = 1.8h$  to determine the height,  $h$ , of the triangle in centimeters.



What is the height of the triangle in centimeters?

**A** 16 cm

**B** 4 cm

**C** 8 cm

**D** 4.5 cm

### 2 (6.8C)

If one base of a trapezoid is 6 inches long, and the height of the trapezoid is 5 inches, which equation represents  $b_2$ , the second base for a trapezoid with an area of  $A$  square inches?

**F**  $b_2 = \frac{5}{2}A - 6$

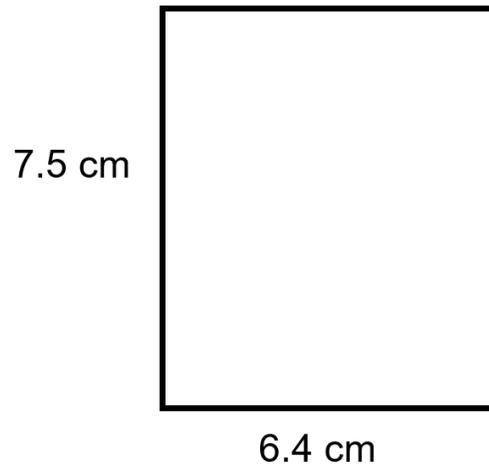
**G**  $b_2 = \frac{5}{2}A + 6$

**H**  $b_2 = \frac{2}{5}A - 6$

**J**  $b_2 = \frac{2}{5}A$

3 (6.8D)

The rectangle shown represents the base of a rectangular prism.



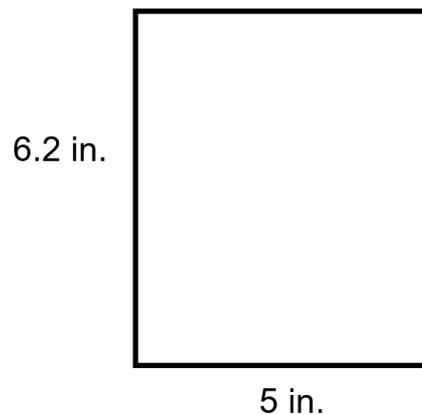
If the prism is 5 cm tall, what is the volume of the prism in cubic centimeters?

- A  $240 \text{ cm}^3$
- B  $48 \text{ cm}^3$
- C  $13.9 \text{ cm}^3$
- D  $69.5 \text{ cm}^3$

**Spiral 66**

1 (6.8D)

The rectangle shown represents the base of a rectangular prism.



If the prism is 12 cm tall, what is the volume of the prism in cubic centimeters?

Record your answer and fill in the bubbles. Be sure to use the correct place value.

					.		
⊕	0	0	0	0		0	0
⊖	1	1	1	1		1	1
	2	2	2	2		2	2
	3	3	3	3		3	3
	4	4	4	4		4	4
	5	5	5	5		5	5
	6	6	6	6		6	6
	7	7	7	7		7	7
	8	8	8	8		8	8
	9	9	9	9		9	9

## 2 (6.8D)

James completed the chart below, showing the dimensions and volume of four rectangular prisms.

Prism	Base Length	Base Width	Height	Volume
A	12.2 cm	4 cm	8 cm	390.4 cm <sup>3</sup>
B	9.4 cm	5.5 cm	9 cm	465.3 cm <sup>3</sup>
C	5.3 cm	7.4 cm	10 cm	329.2 cm <sup>3</sup>
D	4.6 cm	3.4 cm	2.5 cm	39.1 cm <sup>3</sup>

Which prism does NOT have the correct volume?

**A** Prism A

**B** Prism B

**C** Prism C

**D** Prism D

## 3 (6.4D)

Kayla wins her swimming race with a time of 38.4 seconds for the 100-meter freestyle. What is her average speed in meters per second?

**F** 3.84 meters per second

**G** 38.4 meters per second

**H** 26 meters per second

**J** 2.6 meters per second

## Spiral 67

### 1 (6.8C)

The volume of a rectangular prism is  $V$  cubic feet. If the length of the base is 12 feet, and the height of the prism is 9 feet, which equation represents  $w$ , the width of the base?

**A**  $w = \frac{108}{V}$

**B**  $w = 12 + \frac{V}{9}$

**C**  $w = 2(12 + 9V)$

**D**  $w = \frac{V}{108}$

### 2 (6.4G)

A store gives a 24% discount to members of the military. What decimal is equivalent to the percent discount the store gives to members of the military?

**F** 0.024

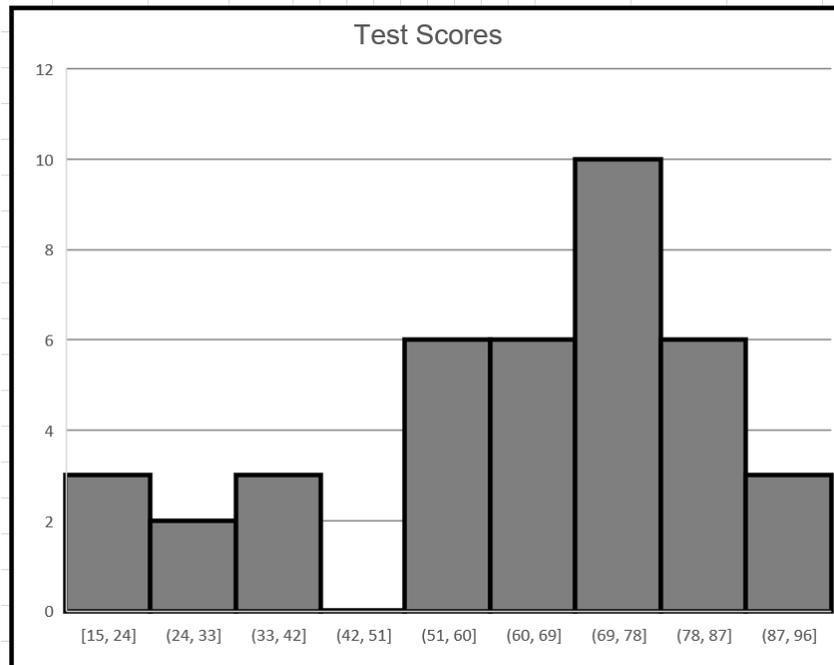
**G** 2.4

**H** 0.24

**J** 24.0

## 3 (6.12B)

The histogram shows the test scores for forty students.



Which statement best describes the data shown in the histogram?

- A** The peak of the data is at 69-78.
- B** The data distribution is symmetrical.
- C** The data distribution has no gaps.
- D** The data has a uniform distribution.

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# SpiralEd Solutions

GRADE 7      SPIRALS 101-120

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## Spiral 105

1 (7.13D)

Zack created this monthly budget.

Monthly Expenses

Item	Value
Car Payment	\$350
Insurance	\$125
Clothes	\$40
Entertainment	\$50
College Savings	\$100
Other Expenses	\$100

While Zack is in high school, he has a part time job which pays \$8.25 an hour. How many hours must Zack work each month to cover his expenses?

- A 93
- B 53
- C 115
- D 92

2 (7.13D)

Anna creates this monthly budget while she is in high school.

Monthly Expenses

Item	Value
Insurance	\$280
Clothes	\$75
Entertainment	\$60
College Savings	\$125
Other Expenses	\$115

Anna calculates that she can manage to work 80 hours a month while in school. As Anna looks for jobs, what is the minimum hourly wage she can make and meet this budget?

**F** \$7.87 an hour

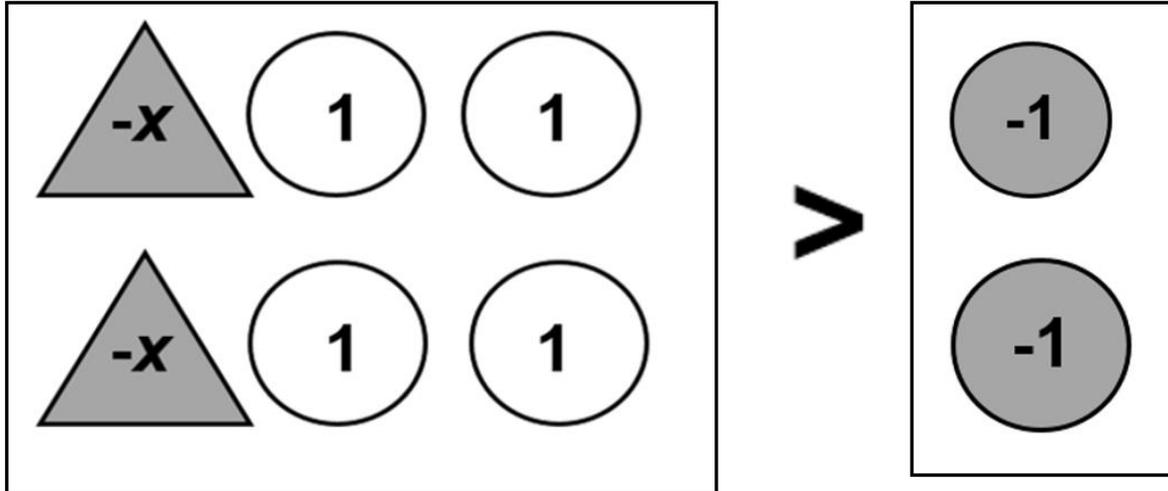
**G** \$8.19 an hour

**H** \$8.28 an hour

**J** \$8.00

3 (7.11A)

An inequality is modeled.



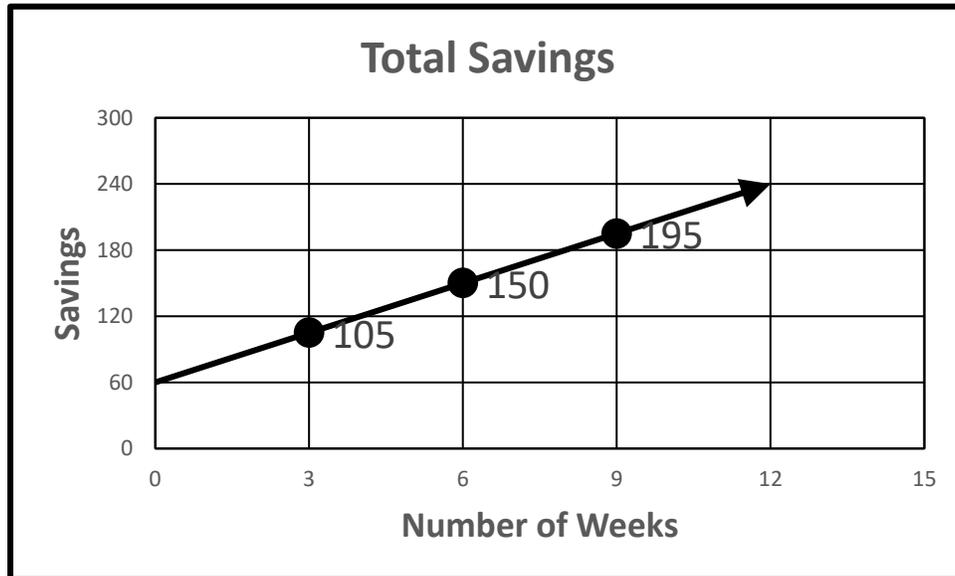
What values of  $x$  make the inequality true?

- A**  $x > 3$
- B**  $x < 3$
- C**  $x > 1$
- D**  $x < 1$

## Spiral 106

### 1 (7.7A)

Brynn has a savings account that she started with the money her parents gave her for her birthday. Each week she deposits the money she earns lifeguarding. The graph shows the total amount of money Brynn had,  $y$ , at the end of  $x$  weeks.



Based on the information in the table, which equation can be used to model the relationship between  $x$  and  $y$ ?

**F**  $y = 15x + 60$

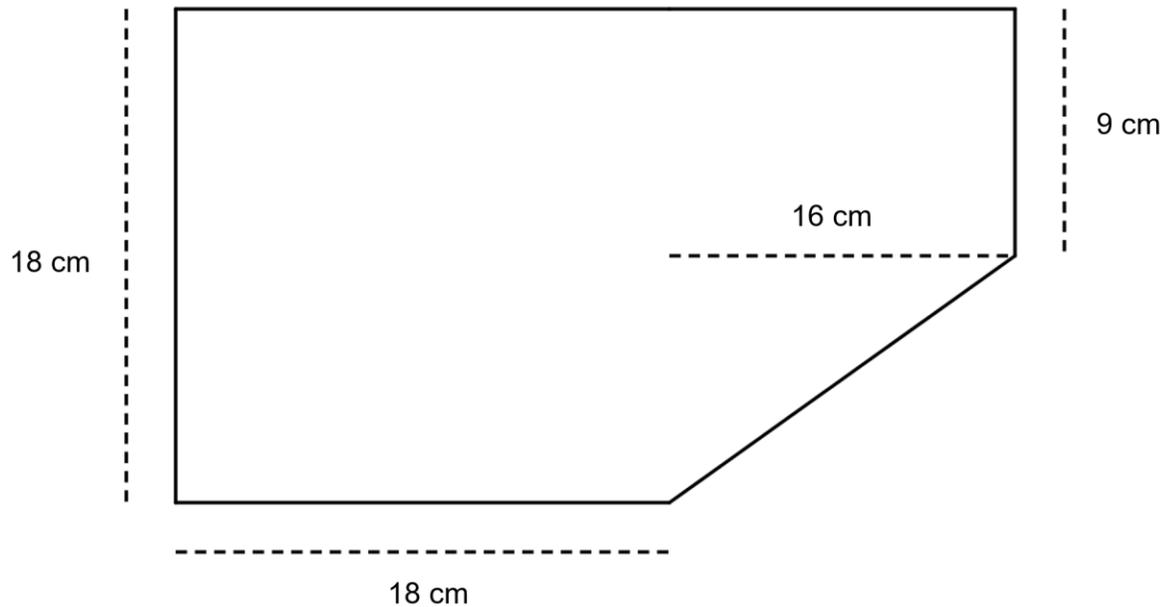
**G**  $y = 25x + 75$

**H**  $y = 35x + 60$

**J**  $y = x + 60$

2 (7.9C)

The outline of a luggage tag is shown.



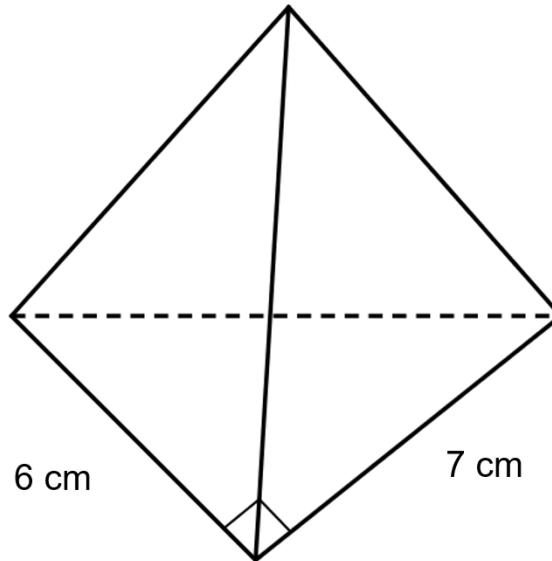
What is the area of the tag in square centimeters?

Record your answer and fill in the bubbles. Be sure to use the correct place value.

					.		
⊕	0	0	0	0		0	0
⊖	1	1	1	1		1	1
	2	2	2	2		2	2
	3	3	3	3		3	3
	4	4	4	4		4	4
	5	5	5	5		5	5
	6	6	6	6		6	6
	7	7	7	7		7	7
	8	8	8	8		8	8
	9	9	9	9		9	9

3 (7.9A)

A triangular pyramid is shown.



If the height of the pyramid is 9 cm, what is its volume in centimeters cubed?

**F** 126 cm<sup>3</sup>

**G** 189 cm<sup>3</sup>

**H** 63 cm<sup>3</sup>

**J** 54 cm<sup>3</sup>

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# SpiralEd Solutions

GRADE 8 SPIRALS 101-120

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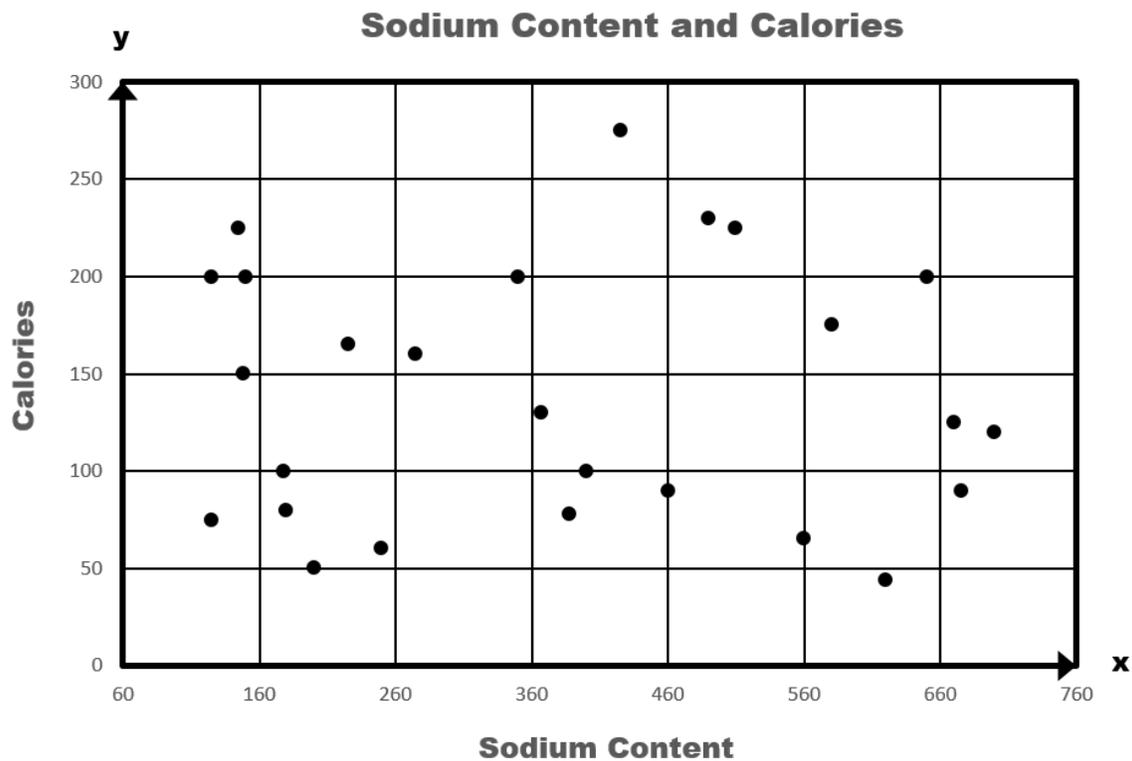
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## Spiral 102

### 1 (8.11A)

A nutritionist tracked the amount of sodium and number of calories in pre-packaged snacks. The scatterplot below shows the amount of sodium and number of calories for the snacks she analyzed.



Which conclusion is best supported by the scatterplot?

**F** As the amount of sodium increases, calories increase.

**G** As the amount of sodium increases, calories remain the same.

**H** As the amount of sodium increases, calories decrease.

**J** There is no clear relationship between the amount of sodium and number of calories.

**2** (8.12A)

Bank A offers a loan rate of 4% simple interest on a 2-year loan and a 3% simple interest on a 3-year loan. What is the difference in interest for the two loans on a \$2,000 loan?

- A** \$60
- B** \$20
- C** \$180
- D** \$160

**3** (8.12C)

In a financial literacy class, students were asked to complete the following table to show return on initial investment, if no other money is deposited or withdrawn.

Initial Investment	Number of Years	Annual Percentage Rate	Compounded	Total Interest Earned	Account Total
\$1,000	18	2.75	annually	(w)	(x)
\$2,000	21	2.4	annually	\$1,291.01	\$3,291.01
\$500	15	3.2	annually	(y)	(z)

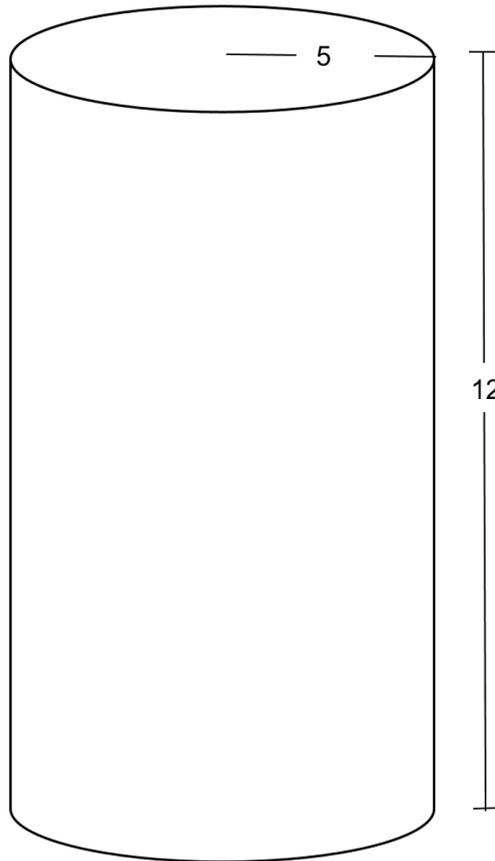
What should the student record for (w) and (z)?

- F** (w) \$629.57; (z) \$301.98
- G** (w) \$629.57; (z) \$801.98
- H** (w) \$129.57; (z) \$301.98
- J** (w) \$301.98.57; (z) \$1,629.57

## Spiral 109

1 (8.7B)

A cylinder and its dimensions are shown in the diagram.

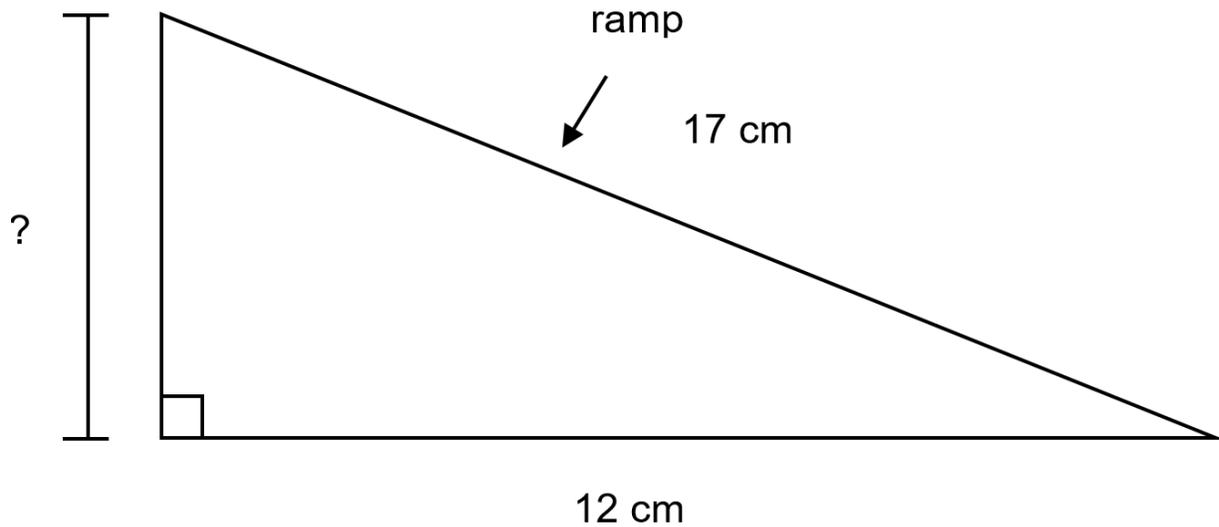


What is the lateral surface area of the cylinder in square centimeters to the nearest tenth?

- A  $157 \text{ cm}^2$
- B  $376.8 \text{ cm}^2$
- C  $533.8 \text{ cm}^2$
- D  $189 \text{ cm}^2$

2 (8.7C)

In science class, a ramp is constructed to test the distance a toy car will travel under different conditions.



Which measurement is closest to the maximum height of the ramp in centimeters?

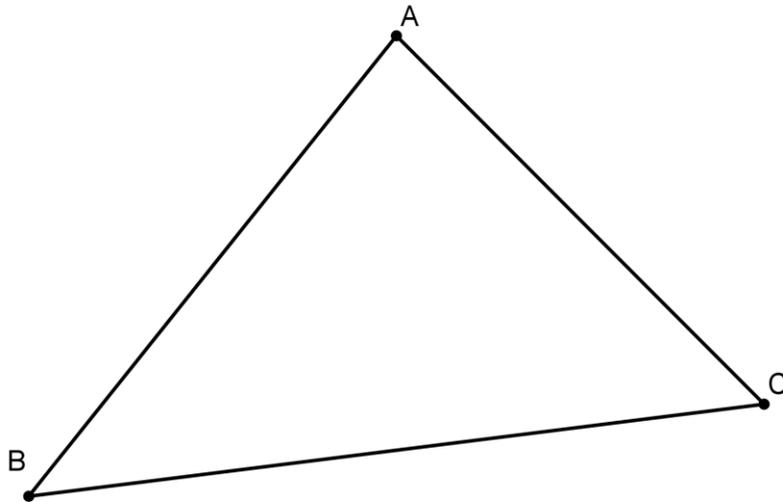
**F** 12 cm

**G** 20.8 cm

**H** 7.5 cm

**J** 9 cm

3 (8.4C)



In  $\triangle ABC$ , the measure of  $\angle A$  is greater than the measure of  $\angle B$ . If  $m\angle A = 3x - 10$  and  $m\angle B = 2x$ , what is the minimum whole number value of  $x$  so that the measure of  $\angle A$  is greater than the measure of  $\angle B$ ?

**A** 11

**B** 10

**C** 9

**D** 12

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# SpiralEd Solutions

ALGEBRA I SPIRALS 41-60

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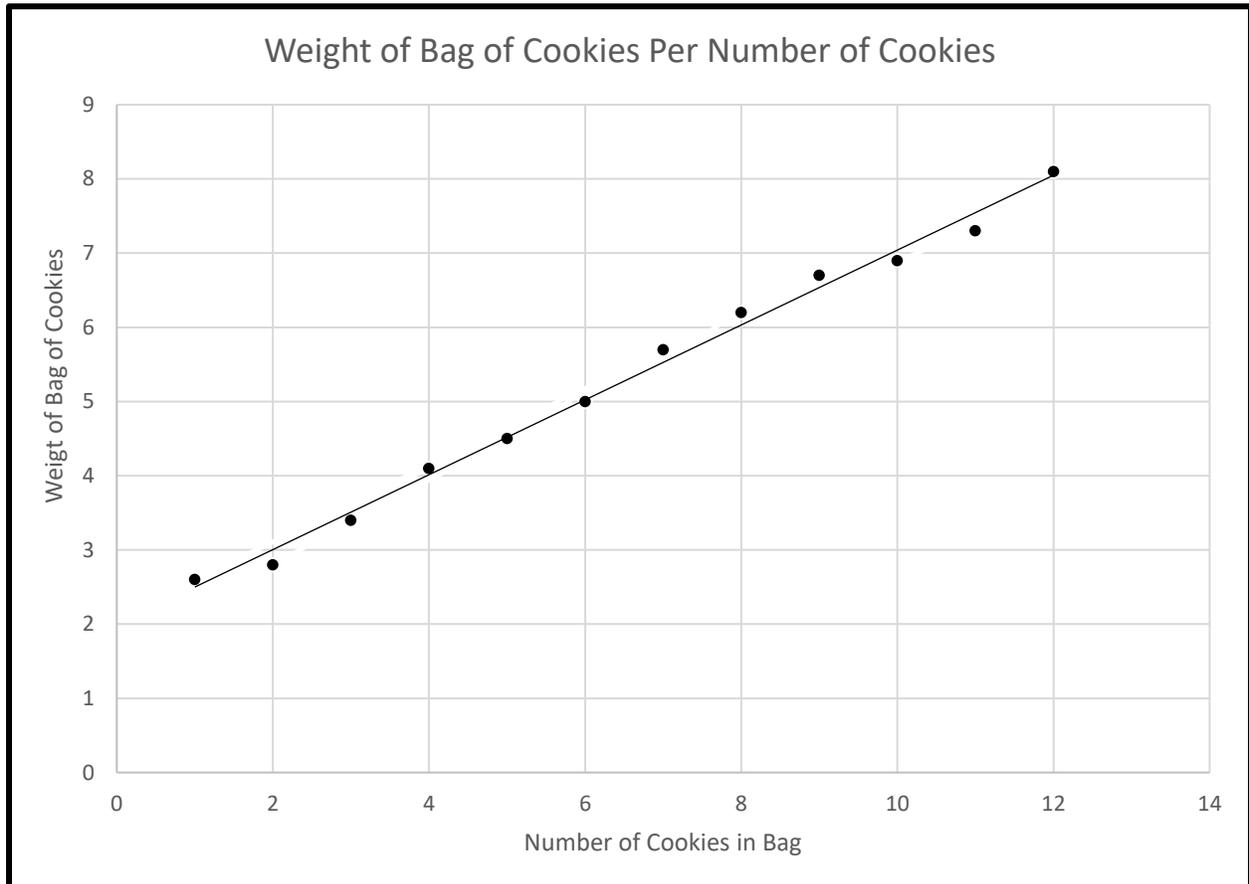
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## Spiral 41

### 1 (A.4C)

The graph shows the relationship between the total weight of a bag of cookies and the number of cookies in the bag.

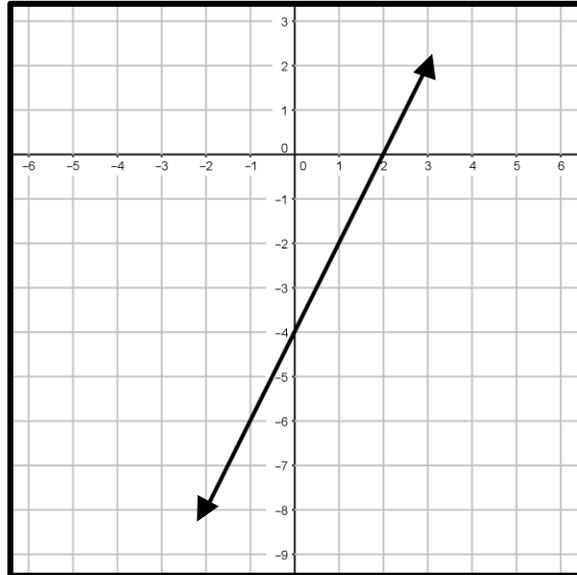


What is the weight of the bag before cookies are added?

- A** 1 ounce
- B** cannot be determined from the data given
- C** 2 ounces
- D** the initial weight depends on the number of cookies

2 (A.3D)

The graph below shows the function,  $2x - y = 4$ .



Which point would not be included in the function,  $2x - y \leq 4$ ?

**F** (-2, 2)    **G** (-2, -2)    **H** (2, -2)    **J** (2, 2)

3 (A.2I)

A jar contains a collection of nickels and dimes with a total of 15 coins. The value of the coins equals \$5.10. Which system of equations could be used to determine the number of nickels and the number of dimes in the jar?

**A**  $15 - d = n$

$0.05d = 5.1 - 0.1n$

**B**  $15 + d = n$

$0.05n = 5.1 - 0.1d$

**C**  $15 - d = n$

$0.05n = 5.1 - 0.1d$

**D**  $d - 15 = n$

$0.05n = 5.1 - 0.1d$

## Spiral 42

### 1 (A.2I)

The sum of two consecutive even numbers is 158. Which system of equations could be used to determine the two numbers?

**F**  $x - y = 158$

$$y = x - 2$$

**G**  $x + y = 158$

$$y = 2x$$

**H**  $x = 158 + y$

$$y = x + 2$$

**J**  $x + y = 158$

$$y = x + 2$$

### 2 (A.5B)

Which inequality describes all the solutions to  $2 + x \geq -(x + 4)$ ?

**A**  $x \geq -1$

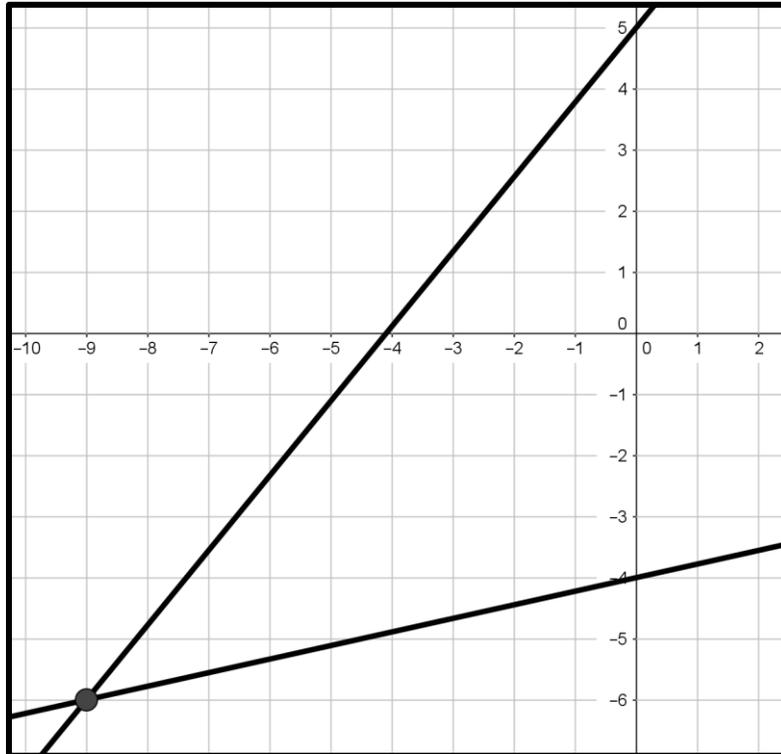
**B**  $x \leq -1$

**C**  $x \geq 0$

**D**  $x \geq -3$

3 (A.2I)

Write the system of equations represented by the graph below.



**F**

$$y = \frac{2}{9}x - 4$$

$$y = \frac{11}{9}x + 5$$

**H**

$$y = -\frac{2}{9}x + 4$$

$$y = \frac{11}{9}x - 5$$

**G**

$$y = \frac{2}{9}x + 4$$

$$y = \frac{11}{9}x - 5$$

**J**

$$y = \frac{9}{2}x + 4$$

$$y = \frac{9}{11}x - 5$$