



THIRD SPACE  
LEARNING

# 6th Grade Arizona State Practice Math Test

Arizona Practice Test Grade 6

Grade 6

## Questions

Name: .....

Class: .....

Date: .....

Score: .....

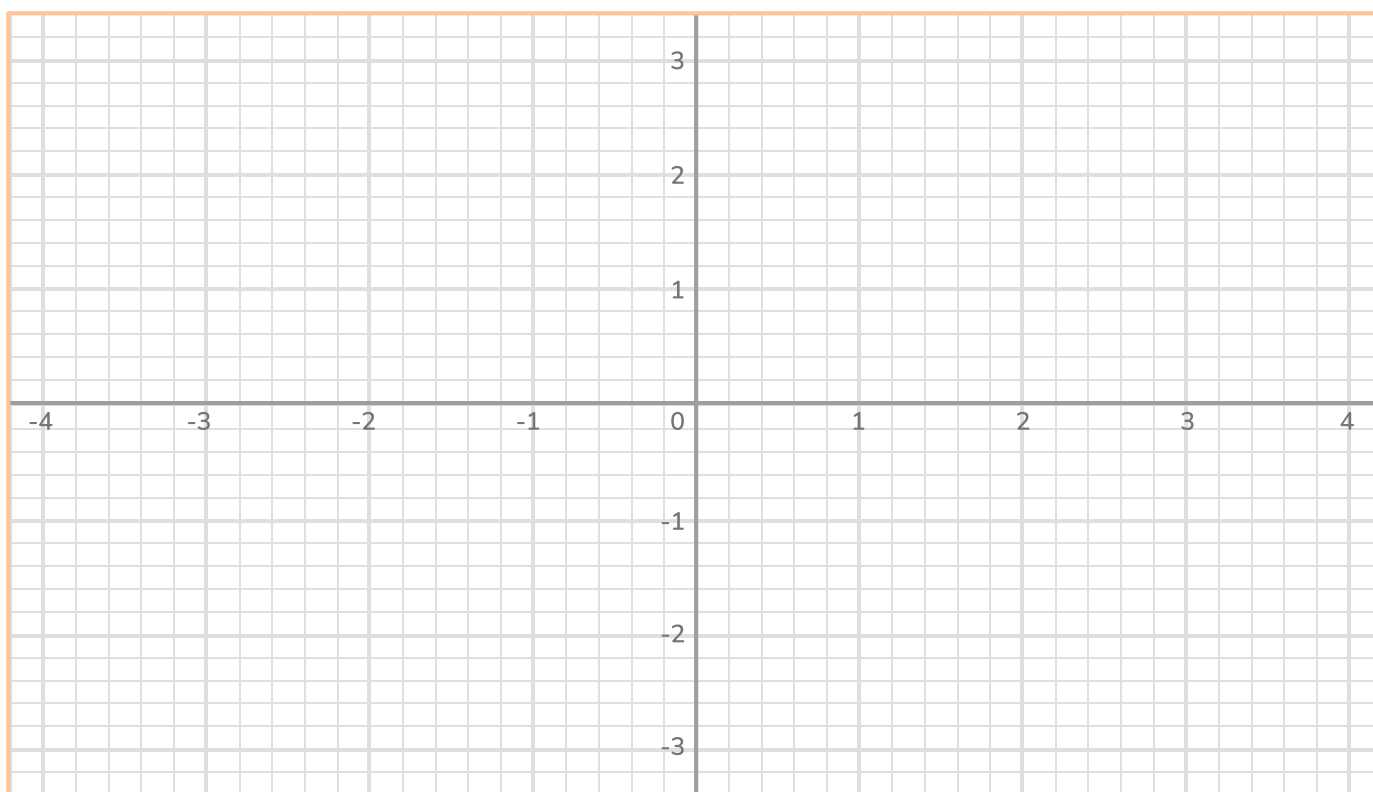
**Session 1:**

**20 Questions**

**Standard: 6.NS.C.6**

**DOK 1**

- 1 Plot the points on the coordinate plane.  $A(3\frac{1}{2}, 2)$   $B(-2, 0)$   $C(-1, -2)$



**Standard: 6.RP.A.1**

**DOK 1**

2 A grocery store has 23 red apples and 38 green apples. What is the ratio of green apples to total apples?

A. 23:38

B. 38:23

C. 61:38

D. 38:61

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**Standard: 6.NS.C.6**

**DOK 2**

3 Identify the value of  $a$  on the number line.



Write your answer on the space:

$a =$  \_\_\_\_\_

**Standard: 6.EE.B.5**

**DOK 2**

- 4 Select all the numbers that are a solution to the inequality below.

$$3x + 2 > 14$$

- A. 4
- B. 3
- C. 6
- D. -4
- E. 14

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**Standard: 6.EE.A.3**

**DOK 3**

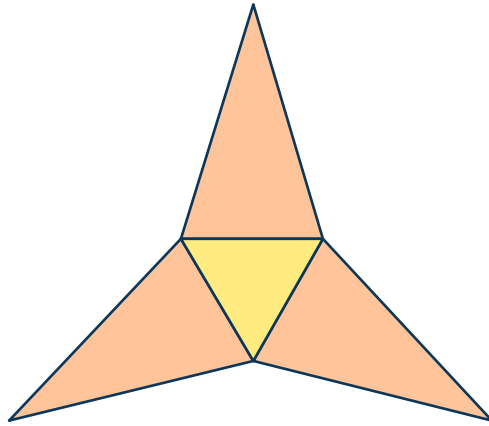
- 5 Which expression is equivalent to  $8x + 28$ ?

- A.  $8(x + 20)$
- B.  $7(x + 4) + x$
- C.  $8(x + 4) + 4$
- D.  $7(x + 3) + x$

**Standard: 6.G.A.4**

**DOK 2**

6 Which shape is formed by the net?



- A. Triangular pyramid
- B. Triangular prism
- C. Square pyramid
- D. Isosceles triangle

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**Standard: 6.RP.A.3**

**DOK 2**

7 Chantal makes 8 bracelets with 3 yards of string. How many yards of string does she need for 12 bracelets? Write your answer in the space below.

 Answer

**Standard: 6.RP.A.3****DOK 2**

- 8 The table below shows the relationship between  $x$  and  $y$ .

$x$	$y$
-2	-8
2	8
4	16
6	24

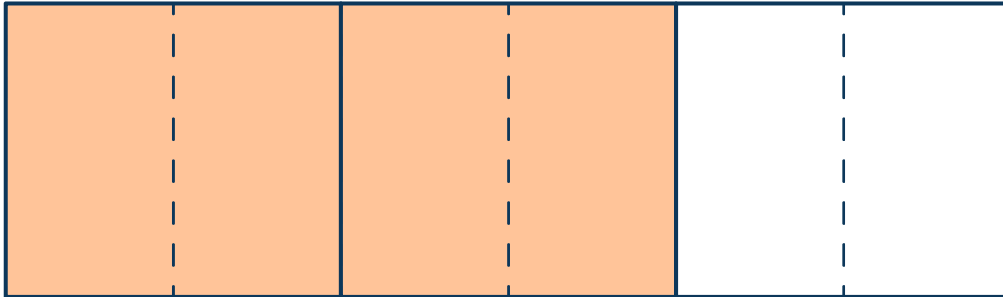
Select the statement that is true about the ratio of  $x$  to  $y$ .

- A. The value of  $x$  is 4 times the corresponding value of  $y$  making the ratio of  $x$  to  $y$  4:1.
- B. The value of  $y$  is 4 times the corresponding value of  $x$  making the ratio of  $x$  to  $y$ , 1:4.
- C. The value of  $y$  is 4 times the corresponding value of  $x$  making the ratio of  $x$  to  $y$ , 4:1.
- D. The value of  $y$  is  $\frac{1}{4}$  times the corresponding value of  $y$  making the ratio of  $x$  to  $y$ , 4:1.

Standard: 6.NS.A.1

DOK 3

- 9 Which expressions can be represented by the model? Select all the correct answers.



- A.  $\frac{2}{3} \div \frac{1}{6}$
- B.  $\frac{4}{6} \div \frac{1}{3}$
- C.  $\frac{1}{6} \div \frac{2}{3}$
- D.  $\frac{1}{3} \div \frac{1}{6}$
- E.  $\frac{1}{6} \div \frac{4}{6}$

**Standard: 6.EE.B.8**

**DOK 2**

- 10 Isadora needs at least 14 more volunteers to sign up for the event on Saturday. If  $v$  is the number of volunteers, write an inequality that shows how many Isadora needs.

Use the space below to write your answer.

 Answer

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**Standard: 6.SP.B.5**

**DOK 1**

- 11 Below are the total scores for the first 5 games Otto's baseball team played.

Total score: 5, 9, 2, 2, 8.

What is the mean of the total scores?

- A. 5.2
- B. 7
- C. 2
- D. 5.1

**Standard: 6.RP.A.3**

**DOK 2**

- 12 A pair of shoes was on sale for 25% off. After the discount, Kyla paid \$36 for the pair of shoes. Calculate the original price.

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**Standard: 6.NS.B.3**

**DOK 1**

- 13 Find the quotient,  $500.76 \div 5.2$ .

- A. 98.1
- B. 96.3
- C. 96.156
- D. 95.4

**Standard: 6.EE.B.5**

**DOK 2**

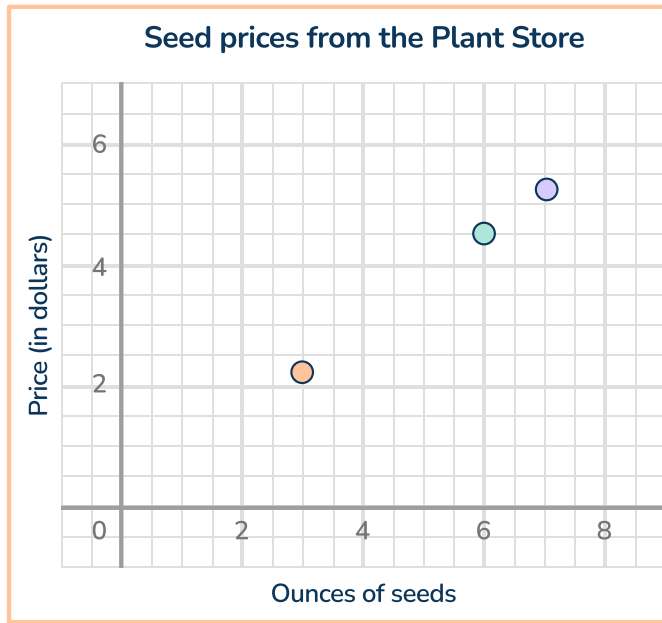
14  $\frac{b}{3} = 12$

Which value for  $b$  makes the equation true?

Standard: 6.EEC.9, 6.RP.A.3

DOK 3

- 15 The graph and table below show information about seeds being sold by a plant store and by a farmer. Which seeds are cheaper per ounce and why?



Seed prices from the farmer	
Ounces of seeds	Price
4	\$2.80
5	\$3.50
8	\$5.60

Use the space below to write your answer.

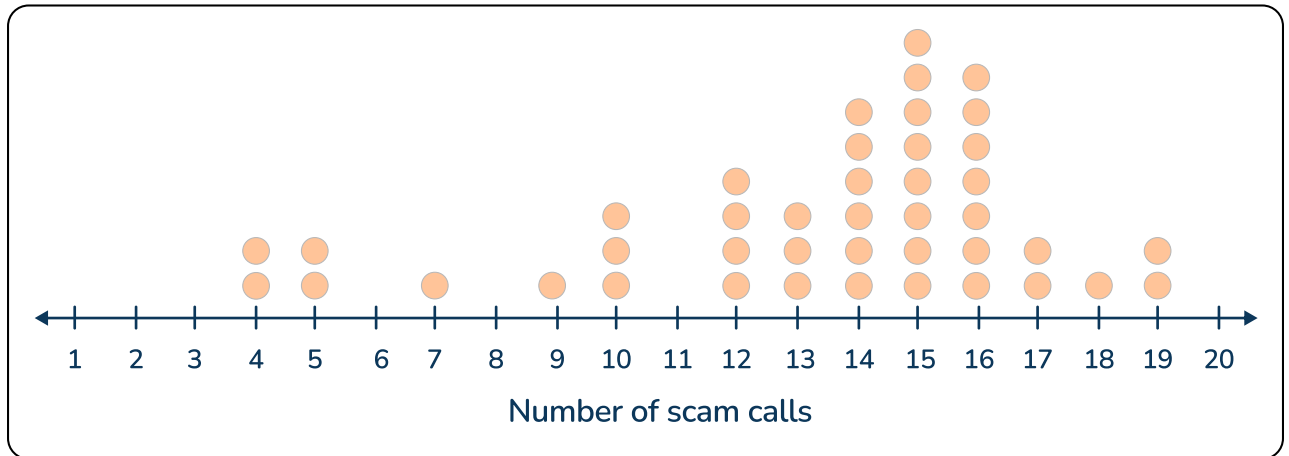
 Answer

Standard: 6.SP.B.4

DOK 3

- 16 Maddie recorded the amount of scam calls she received on her phone over 20 days.

What does the gap between 1 and 4 mean?



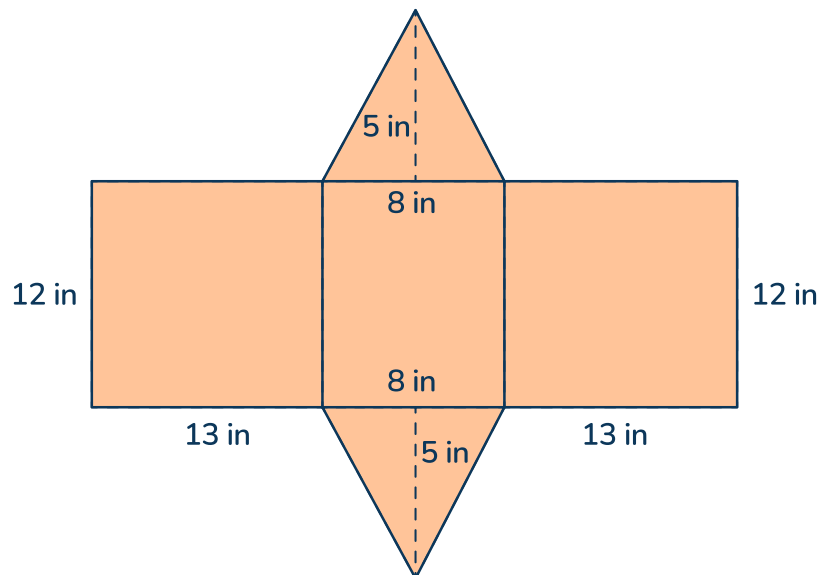
Use the space below to write your answer.

 Answer

Standard: 6.G.A.2

DOK 2

- 17 Alma is painting the outside of an isosceles triangular prism. How many square inches does she paint? Use the space to write your answer.



 Answer

**Standard: 6.EE.C.9**

**DOK 3**

**18** The student council is selling tickets to the school dance for \$4. Daniel wrote the following equation:  $4x = y$ . Which statements correctly describe Daniel's equation within the context? Select all the correct answers.

- A.  $x$  is the price of one ticket
- B.  $y$  is the total dollars for  $x$  tickets sold
- C. 4 is the total number of tickets sold so far
- D.  $4x$  is the ticket price multiplied by the tickets sold
- E.  $y$  has only one correct solution

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**Standard: 6.EE.A.4**

**DOK 3**

**19** Determine if the two expressions are equivalent, use the space below to write your answer.

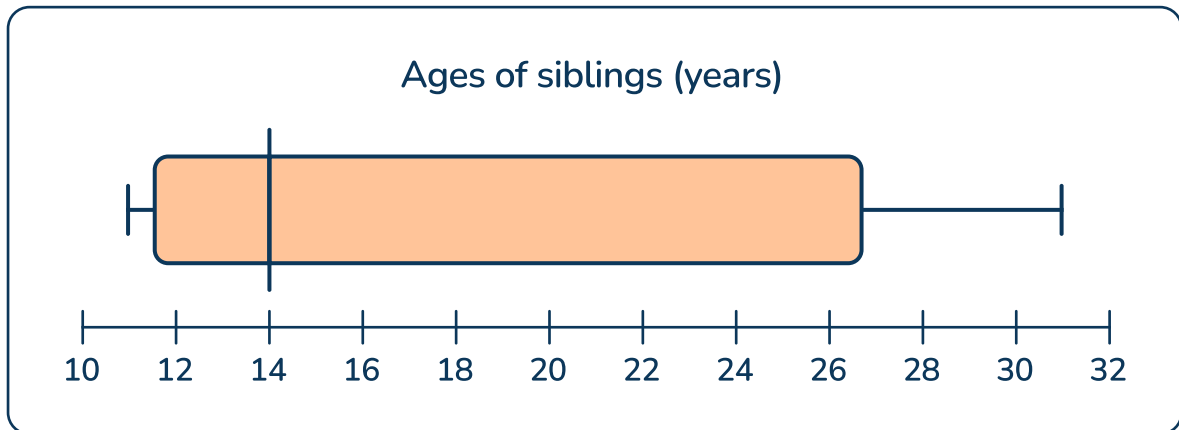
$$5c - 7b \quad \text{and} \quad 7b - 5c$$

 Answer

Standard: 6.SP.B.4, 6.SP.B.5

DOK 2

20 Which statement about the data shown in the box plot below is true?



- A. The range is 22 years and the IQR is 15.
- B. The second half of the data has less variability than the first half.
- C. The median age is 21 years.
- D. At least half the siblings are 14 years old or less.

Session 2:

15 Questions

Standard: 6.EE.A.1

DOK 2

1 Evaluate each expression.

Expression	Answer
$4^2 - (3 - 10)$	
$2(12 + 3) - 3^2$	
$3(6^2 - 2) + 7$	

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Standard: 6.NS.B.4

DOK 2

2 What is the least common multiple of 8 and 12?

 Answer

**Standard: 6.NS.C.5****DOK 2**

- 3 The table below shows the change in average temperature over 3 months. Select the statements that are correct.

Month	Change in average temperature
November	$+5^{\circ}F$
December	$-3^{\circ}F$
January	$0^{\circ}F$

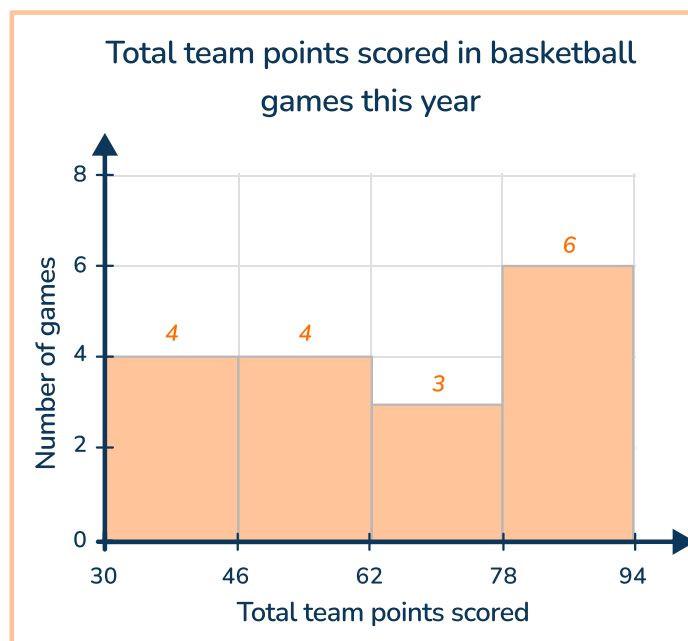
- A. There was no change in the average temperature in January.
- B. It was -3 degrees all month in December.
- C. November had a 5 degree increase in average temperature.
- D. January averaged 0 degrees all month.
- E. December had a 3 degree decrease in average temperature.

Standard: 6.SP.B.4

DOK 3

4 In the histogram below, which bin has the median data point?

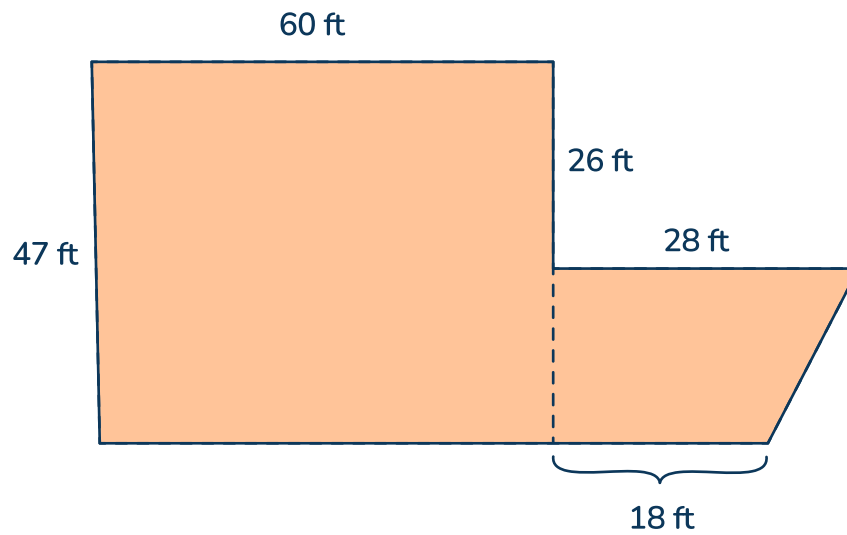
- A. 30-46
- B. 46-62
- C. 62-78
- D. 78-94




Standard: 6.G.A.1

DOK 3

- 5 The ground plan of a park is pictured below. What is the total square footage of the park?



Use the space below to show your work.

 Answer

**Standard: 6.RP.A.2****DOK 2**

- 6 Emery is collecting data on two water filters.

Water Filter A	
Time (minutes)	Ounces filtered
3	51
4	68
7	119

Water Filter B	
Time (minutes)	Ounces filtered
2	32
5	80
6	96

Which filter is faster and by how many ounces per minute?

- A. Filter A is faster by 1 ounce per minute
- B. Filter B is faster by 1 ounce per minute
- C. Filter A is faster by 4 ounces per minute
- D. Filter B is faster by 17 ounces per minute

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**Standard: 6.EE.B.6, 6.EE.B.7****DOK 3**

- 7 Estelle is five years older than her brother Dorian. Which equation(s) show the relationship between Estelle's age,  $e$ , and Dorian's age,  $d$ . Select all the correct answers.

- A.  $d - 5 = e$
- B.  $d + 5 = e$
- C.  $e - 5 = d$
- D.  $e + d = 5$
- E.  $e - d = 5$

**Standard: 6.SP.A.1**

**DOK 2**

8 Which of the following is a statistical question?

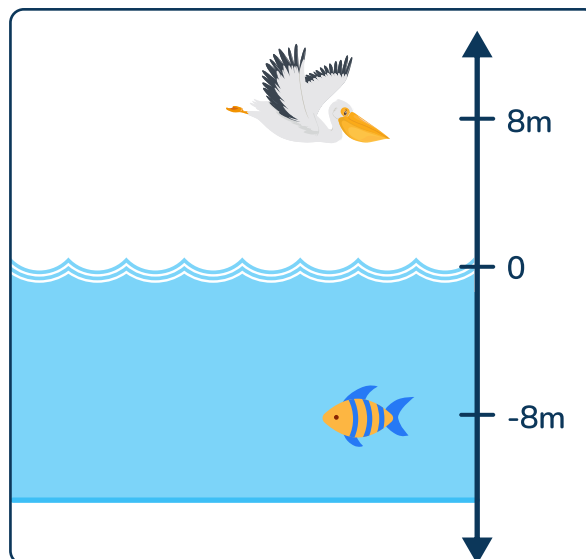
- A. What is the temperature of the classroom today?
- B. Does Kaylah think the temperature of the classroom this week was too hot?
- C. What is the average temperature of the classroom this week?
- D. How many days has the temperature of the classroom been above  $74^{\circ}$ ?

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**Standard: 6.NS.C.5**

**DOK 2**

9 The diagram below shows the location of a seagull and fish in comparison to sea level.



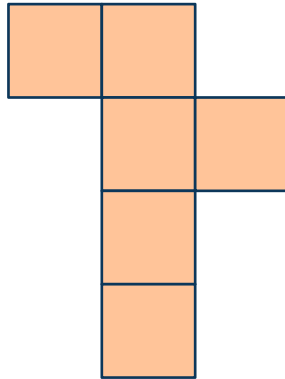
Which statement is true?

- A. The seagull is 8m higher than the fish.
- B. The fish is 16m below the seagull.
- C. The water the fish is in measures -8 degrees.
- D. The sea level is at 0, with the fish above and the seagull below.

**Standard: 6.G.A.2**

**DOK 2**

- 10 A cube has a side length of 4.7 inches. The net of the cube is shown below.



Ivy folds the cube up and fills it with water. How many cubic inches of water are in the cube?

 Answer

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**Standard: 6.RP.A.1, 6.RP.A.2, 6.RP.A.3**

**DOK 2**

- 11 For every 5 cups of water, there are 6 tablespoons of plant food. Which statement about the ratio is true?
- A. There is  $\frac{5}{6}$  of a cup of water for every tablespoon of plant food.
  - B. For every 10 cups of water, there are 11 tablespoons of plant food.
  - C. There is  $\frac{6}{5}$  of a cup of water for every tablespoon of plant food.
  - D. For every 2 cups of water, there are 3 tablespoons of plant food.

**Standard: 6.EE.A.1**

**DOK 2**

**12** Talia is solving the two equations below. She says, “I can just solve expression A, because expression B will have the same answer.” Do you agree? Why or why not? Select the best explanation.

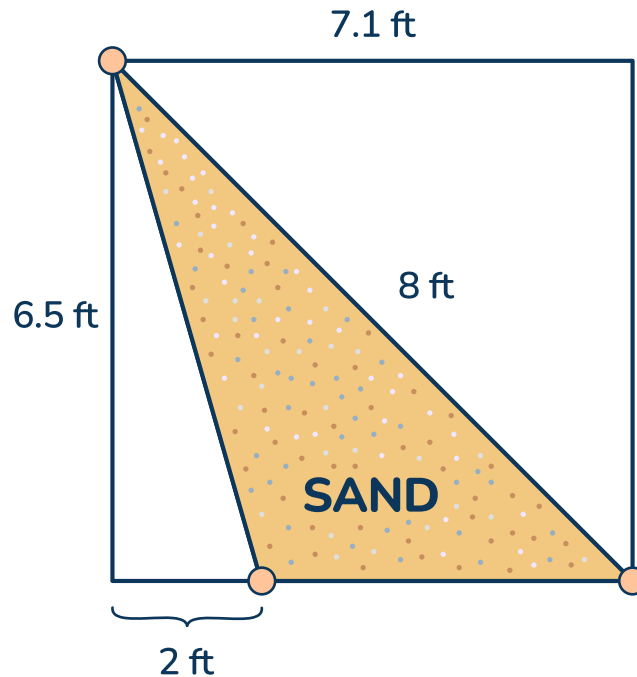
- Expression A:  $(7 + 51)^3$
- Expression B:  $7 + 51^3$

- A. Yes, because the order of operations is the same.
- B. No, because expression A will add first and expression B will not.
- C. Yes, because the expressions have the same operations.
- D. No, because expression B will multiply by 3 first and expression A will not.

Standard: 6.G.A.1

DOK 3

- 13 Bianca is covering a triangular part of her garden with sand. The diagram below shows where Bianca will place the sand.



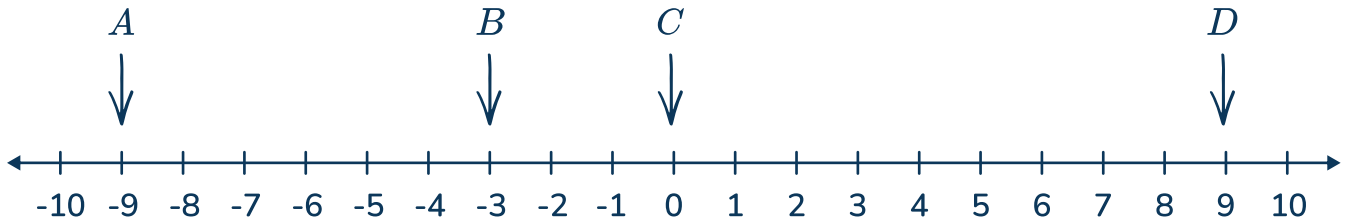
Calculate the amount of square feet Bianca will cover with sand. Use the space below to write your answer.

 Answer

Standard: 6.NS.C.6

DOK 2

14 Where is  $-(-9)$  on the number line?



- A. Point A
- B. Point B
- C. Point C
- D. Point D

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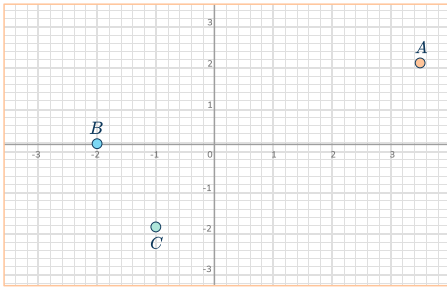
Standard: 6.EE.C.9

DOK 3

15 Jerome pays \$37 for supplies to make bracelets. He sells the bracelets for \$6 each. Write an equation that shows Jerome's profit,  $p$ , after selling  $b$  bracelets. Write your answer in the space below.

 Answer

## Answer Key

Answer Key			
Session 1			
Item number	Correct answer	Standard(s)	DOK
1		6.NS.C.6	DOK 1
2	D	6.RP.A.1	DOK 1
3	-0.45	6.NS.C.6	DOK 2
4	C, E	6.EE.B.5	DOK 2
5	B	6.EE.A.3	DOK 3
6	A	6.G.A.4	DOK 2
7	$4\frac{1}{2}$ yards	6.RP.A.3	DOK 2
8	B	6.RP.A.3	DOK 2
9	A, B	6.NS.A.1	DOK 3
10	$v \geq 14$	6.EE.B.8	DOK 2
11	A	6.SP.B.5	DOK 1
12	\$48 is the original price	6.RP.A.3	DOK 2

# Arizona State Practice Math Test | Grade 6 | Answers

Answer Key			
Session 1			
Item number	Correct answer	Standard(s)	DOK
13	B	6.NS.B.3	DOK 1
14	36	6.EE.B.5	DOK 2
15	Seeds are cheaper from the farmer, \$0.70 per ounce	6.EE.C.9, 6.RP.A.3	DOK 3
16	Maddie did not receive scam calls on days 1, 2, and 3	6.SP.B.4	DOK 3
17	448 in <sup>2</sup>	6.G.A.2	DOK 2
18	B, D	6.EE.C.9	DOK 3
19	The expressions are not equal.	6.EE.A.4	DOK 3
20	D	6.SP.B.4, 6.SP.B.5	DOK 2
Session 2			
Item number	Correct answer	Standard(s)	DOK
1	$4^2 - (3 - 10) = 23$ $2(12 + 3) - 3^2 = 21$ $3(6^2 - 2) + 7 = 109$	6.EE.A.1	DOK 2
2	24	6.NS.B.4	DOK 2
3	A, C, E	6.NS.C.5	DOK 2
4	C	6.SP.B.4	DOK 3

# Arizona State Practice Math Test | Grade 6 | Answers

Session 2			
Item number	Correct answer	Standard(s)	DOK
5	3,303 ft <sup>3</sup>	6.G.A.1	DOK 3
6	A	6.RP.A.2	DOK 2
7	B, C, E	6.EE.B.6, 6.EE.B.7	DOK 3
8	C	6.SP.A.1	DOK 2
9	B	6.NS.C.5	DOK 2
10	103.823 in <sup>3</sup>	6.G.A.2	DOK 2
11	A	6.RP.A.1, 6.RP.A.2, 6.RP.A.3	DOK 2
12	B	6.EE.A.1	DOK 2
13	16.575 ft <sup>2</sup>	6.G.A.1	DOK 3
14	D	6.NS.C.6	DOK 2
15	$p = 6b - 37$	6.EE.C.9	DOK 3

## Rationales

Session 1		
Item	Score	Rationale
1	1	
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
2	1	Students write the ratio comparing green apples to total apples by first adding the red and green apples together, $23 + 38 = 61$ . Then write the comparison with the amount of green apples first, which is 38 to the total. So the ratio is 38:61, D
	0	Answer is incorrect or irrelevant.

## Arizona State Practice Math Test | Grade 6 | Rationales

Item	Score	Rationale
3	1	The students realize that from tick mark to tick mark is the value of 0.15. So, starting at 0.3 keep subtracting 0.15 until you reach a which is -0.45 or since there are 5 spaces from 0.3 to a multiply $5 \times 0.15 = 0.75$ and then subtract that from 0.3. $0.3 - 0.75 = -0.45$
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
4	1	The student identifies the solution to be $x > 4$ so all the numbers listed that are greater than 4 are 6 and 14. C and E
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
5	1	The student recognizes that choice B multiplies out to be $8x + 28$ .
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
6	1	The student determines that the figure is a pyramid because there is only one base and there are triangular sides. So, since the base is a triangle, the figure must be a triangular pyramid, A
	0	Answer is incorrect or irrelevant.

## Arizona State Practice Math Test | Grade 6 | Rationales

Item	Score	Rationale
7	1	<p>The student uses a proportion to find the answer. 8 to 3 is the same as 13 to the amount of string.</p> $\frac{8}{3} = \frac{13}{x}$ $8x = 39$ $x = 4\frac{1}{2} \text{ yards of string,}$
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
8	1	The student recognizes that the value of $y$ is 4 times the value of $x$ because $-2 \times 4 = -8$ , the ratio of $-2$ to $-8$ is 1 to 4 or 1:4. B
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
9	1	<p>The student recognizes that the initial fraction model without the dashed lines is <math>\frac{2}{3}</math> and with the dashed lines is dividing <math>\frac{2}{3}</math> by <math>\frac{1}{6}</math>.</p> <p>The student also recognizes the model with the dashed lines to be <math>\frac{4}{6}</math> and without the dashed lines it is divided by <math>\frac{1}{3}</math>, A, B</p>
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
10	1	The student understands that at least means greater than or equal to and writes $v \geq 14$ .
	0	The response is incorrect or irrelevant.

## Arizona State Practice Math Test | Grade 6 | Rationales

Item	Item	Rationale
11	1	The student correctly calculates the mean: $\frac{5 + 9 + 2 + 2 + 8}{5} = 5.2, A$
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
12	1	The student correctly calculated the original price, by understanding that the sale price is 75% of the original price. Using a proportion: $\frac{75}{100} = \frac{36}{x}$ $3600 = 75x$ $48 = x$ \$48 dollars is the original price.
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
13	1	The student divides, $500.76 \div 5.2 = 96.3, B$
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
14	1	The student solves the equation correctly, $\frac{b}{3} = 12$ $\frac{b}{3} \times 3 = 12 \times 3$ $b = 36$
	0	Answer is incorrect or irrelevant.

## Arizona State Practice Math Test | Grade 6 | Rationales

Item	Item	Rationale
15	1	The student identifies the unit rate of both, (cost per ounce) Plant store: $\frac{4.5}{6} = 0.75$ Farmer: $\frac{2.80}{4} = 0.70$ The seeds are cheaper from the farmer, \$0.70 per ounce
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
16	1	The student explains that the gap means that Maddie did not receive any scam calls on day 1, 2, and 3.
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
17	1	The student calculates the surface area correctly. $2\left(\frac{1}{2} \times 8 \times 5\right) + 2(13 \times 12) + (8 \times 12) = 448 \text{ in}^2$
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
18	1	The student correctly interprets the equation with $y$ representing the total amount of dollars for the $x$ tickets sold and 4 times $x$ represents the amount of tickets sold times \$4, B, D
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
19	1	The student explains that the expressions are not equal. The signs of the coefficients are different. $5c - 7b$ has a positive 5 and a negative 7 and $7b - 5c$ means that the coefficient 7 is positive and the 5 is negative.
	0	Answer is incorrect or irrelevant.

## Arizona State Practice Math Test | Grade 6 | Rationales

Session 2		
Item	Item	Rationale
20	1	The student interprets the box plot correctly, meaning that the median is 14 so half the data is below the median and the other half is above 14. So, at least half the siblings are 14 year old or less, D
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
1	1	The student makes the correct calculations. $4^2 - (3 - 10) = 23$ $2(12 + 3) - 3^2 = 21$ $3(6^2 - 2) + 7 = 109$
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
2	1	The student calculates the least common multiple to be 24.
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
3	1	The student correctly interprets the table and understands that November had a 5 degree increase in temperature, December had an average temperature decrease of 3 degrees and there was no change in average temperature in January, A, C, E
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
4	1	The student understands that the median is the middle data point. There are 17 data points because, $4 + 4 + 3 + 6 = 17$ The middle data point lands in 62-78 bin, C
	0	Answer is incorrect or irrelevant.

## Arizona State Practice Math Test | Grade 6 | Rationales

Item	Item	Rationale
5	1	The student calculates the area to be: $(60 \times 47) + (\frac{1}{2} \times 21 (28 + 18)) = 2820 + 483 = 3,303 \text{ ft}^2$
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
6	1	The student calculates the unit rate of water filter A to be 17 oz/min and calculates the unit rate of water filter B to be 16 oz/min. Filter A is faster by 1 ounce per minute, A.
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
7	1	The student correctly interprets the problem. Estelle is 5 years older than Dorian, so Dorian's age plus 5 equals Estelle's age, $d + 5 = e$ , or Estelle's age minus 5 equals Dorian's age, $e - 5 = d$ , or the difference between their ages is 5, $e - d = 5$ . B, C, E
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
8	1	The student identifies C as the right answer, because asking about average temperature is a statistical question due to the fact that the average is a statistical measure.
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
9	1	The student interprets the picture correctly by calculating that the fish is 16 meters below the seagull because 8 meters above sea level and 8 meters below sea level is a total of 16 meters, B
	0	Answer is incorrect or irrelevant.

## Arizona State Practice Math Test | Grade 6 | Rationales

Item	Item	Rationale
10	1	The student correctly calculates the volume to be, $V = 4.7 \times 4.7 \times 4.7$ $V = 103.823 \text{ inches}^3$
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
11	1	The student interprets the ratio to 5 cups of water to 6 tablespoons of plant food, so for every 1 tablespoon of plant food there is $\frac{5}{6}$ cup of water, A
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
12	1	The student applies the order of operations correctly and knows that in Expression A you have to add what is in the parentheses before raising to the third power and in Expression B you have to raise 51 to the third power first and then add 7. Expression A is $(7 + 51)^3 = (58)^3 = 195,112$ Expression B is $7 + 51^3 = 7 + 132,651 = 132,658$ So Talia is not correct, B.
	0	Answer is incorrect or irrelevant.

## Arizona State Practice Math Test | Grade 6 | Rationales

Item	Item	Rationale
13	1	<p>The student applies the formula for finding the area of a triangle,</p> $A = \frac{1}{2}bh$ $b = 7.1 - 2 = 5.1$ $h = 6.5$ $A = \frac{1}{2}(5.1)(6.5)$ $A = 16.575 \text{ ft}^2$
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
14	1	The student correctly interprets $-(-9)=9$ so, point D.
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
15	1	The student writes the equation, $p = 6b - 37$
	0	Answer is incorrect or irrelevant.

Breakdown of Assessment by domain				
Ratios & Proportional Relationships	Expressions, Equations, and Inequalities	The Number System	Geometry	Statistics and Probability
23%	30%	20%	12%	15%

## Do you have a group of students who need a boost in math?

Each student could receive a personalized lesson every week from our specialist one-on-one math tutors.

- ✓ Differentiated instruction for each student
- ✓ Aligned to your state's standard
- ✓ Scaffolded learning to close gaps

## Speak to us

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