



THIRD SPACE  
LEARNING

# 6th Grade North Carolina State Practice Math Test

North Carolina Practice Test  
Grade 6

Grade 6

## Questions

Name: .....

Class: .....

Date: .....

Score: .....

No Calculator For Questions 1 - 22



- 1 Booker is solving the two equations below. He says, “I can just solve expression a, because expression b will have the same answer.” Do you agree? Why or why not?

- Expression a:  $(8 + 101)^4$
- Expression b:  $8 + 101^4$

- A. Yes, because the expressions have the same numbers and operations.  
B. No, because expression b will multiply by 4 first and expression a will not.  
C. Yes, because the order of operations is the same in both expressions.  
D. No, because expression a will add first and expression b will not.

- 2 What is the value of  $a$ ?



- A. 0.3  
B. -0.9  
C. -0.35  
D. -1.6

3 Which expression is equivalent to  $6x + 40$ ?

A.  $6(x + 34) - 4$

B.  $5(x + 8) + x$

C.  $6(x + 5) + 4$

D.  $5(x + 8) - x$

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4  $-5 - 8 = x$

Solve for  $x$ .

A.  $x = -13$

B.  $x = 13$

C.  $x = -3$

D.  $x = 3$

- 5 Harley makes 9 bracelets with 4 yards of string. How many yards of string does she need for 12 bracelets?

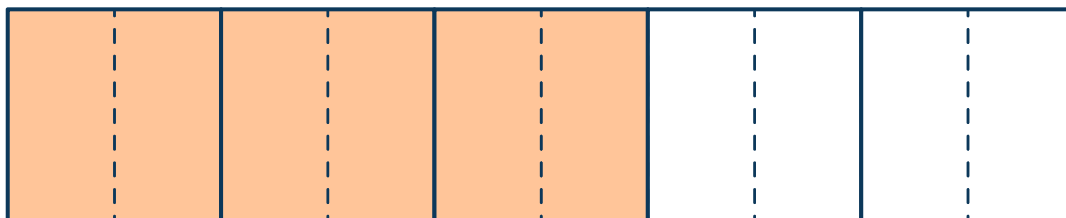
A. 3 yards of string

B. 7 yards of string

C.  $4\frac{2}{3}$  yards of string

D.  $5\frac{1}{3}$  yards of string

- 6 Which expression is represented by the model?



A.  $\frac{6}{10} \div \frac{1}{2}$

B.  $\frac{3}{5} \div \frac{1}{10}$

C.  $\frac{1}{10} \div \frac{3}{5}$

D.  $\frac{1}{2} \div \frac{6}{10}$



- 7 No more than 55 people sign up for the event on Saturday. If  $p$  is the number of people who sign up, which inequality shows how many people can sign up?

A.  $p \leq 55$   
B.  $p \geq 55$   
C.  $p < 55$   
D.  $p > 5$

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- 8 Below are the final scores for the first 5 games Jin's baseball team played.  
Total score: 6, 10, 3, 3, 9.

What is the mean of the total scores?

A. 3  
B. 4.5  
C. 6.2  
D. 7

---

- 9 Which expression is equivalent to  $42 + 91$ ?

A.  $6(42 + 91)$   
B.  $7 \times 6 + 6 \times 15$   
C.  $6 \times (7 + 15)$   
D.  $7(6 + 13)$

10 Solve  $74.902 \div 3.4$ .

- A. 22.03
- B. 22.3
- C. 22.102
- D. 22.012

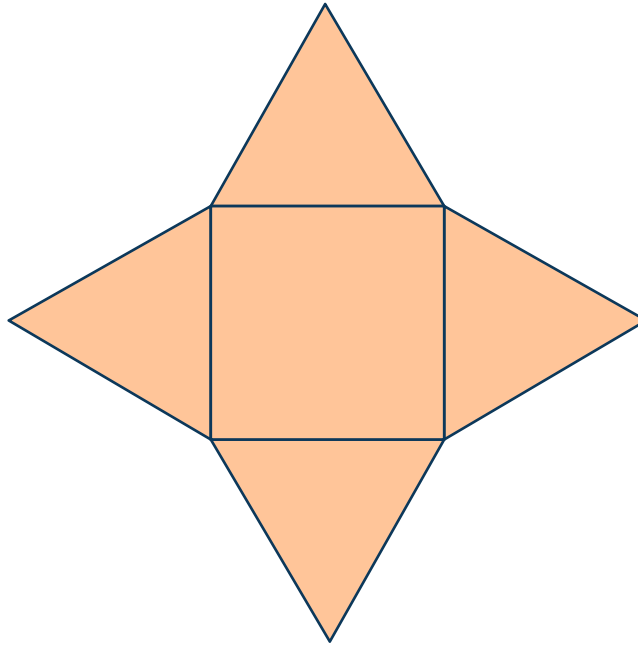
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11  $\frac{b}{5} = 35$

Which value for  $b$  makes the equation true?

- A. 7
- B.  $\frac{1}{7}$
- C. 175
- D. 40

12



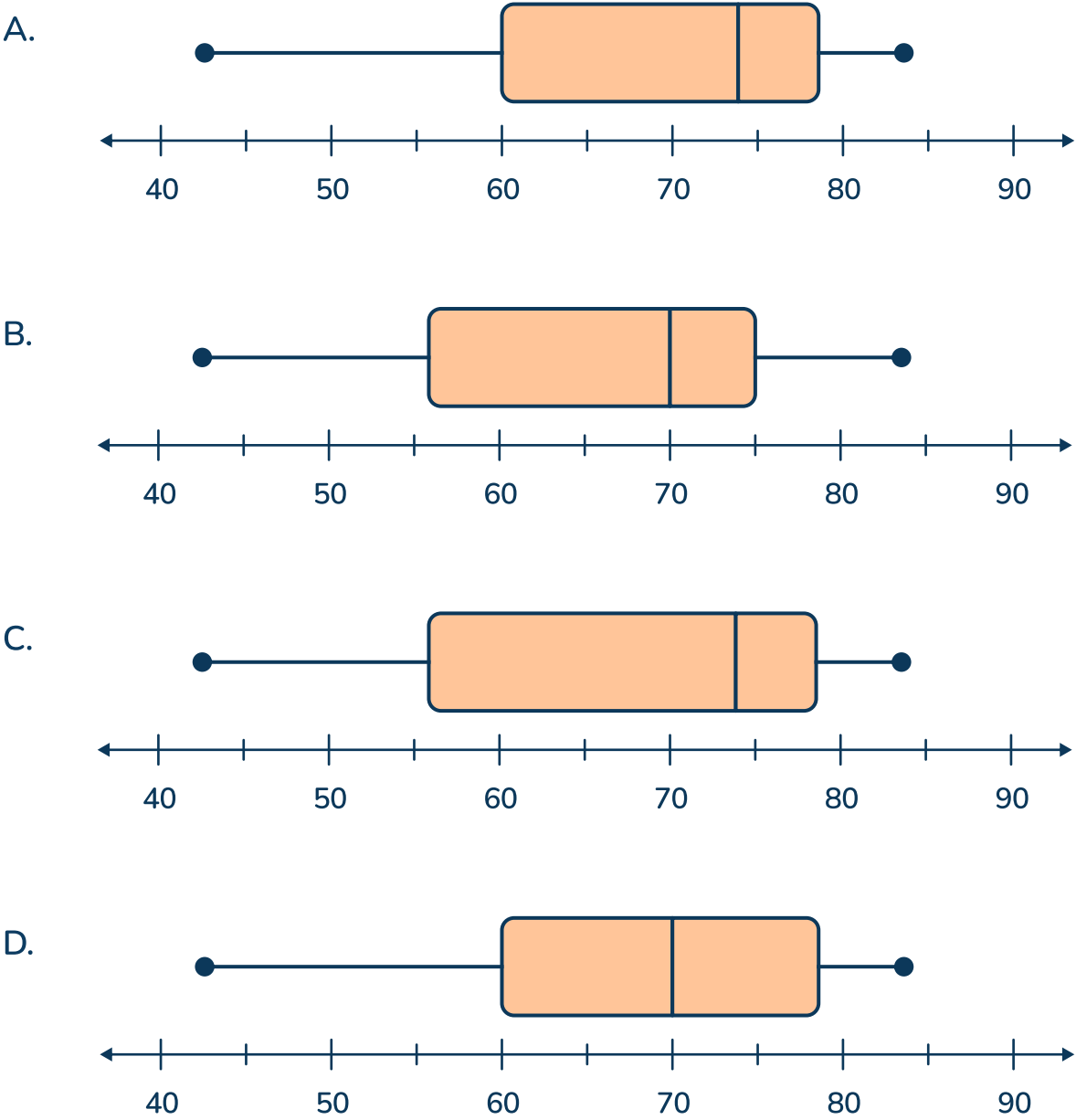
Which shape is formed by the net above?

- A. Triangular pyramid
- B. Triangular prism
- C. Square pyramid
- D. Cube

13

State	NY	FL	WI	TX	HI	ME	OK	CA	GA	AK	AL	NC
Average high temperature in April	62	72	59	77	84	54	74	74	77	43	77	70

Which box plot represents the data in the table?



14 Which statement is true?

- A.  $-11 > -10$
- B.  $\frac{1}{4} < -\frac{1}{2}$
- C.  $2.6 > 2\frac{2}{3}$
- D.  $124.61 > 124.601$

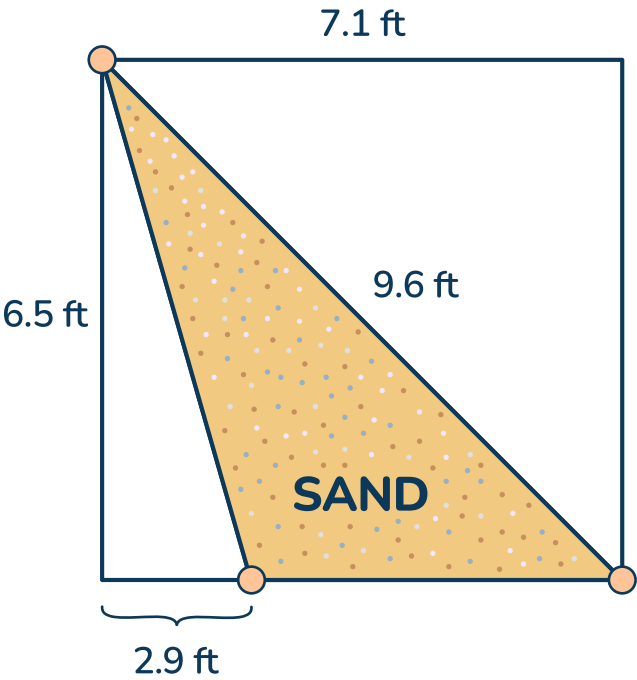
15 Henry solved  $674.8 \div 56$  using the standard algorithm. What mistake did Henry make?

	0	1	2	.	5		
56	)	6	7	4	.	8	0
-	0						
	6	7					
-	5	6					
	1	1	4				
-	1	1	2				
			2	8	0		
		-	2	8	0		
						0	

- A. Henry made a subtraction error.
- B. Henry did not include the remainder.
- C. A digit in the quotient has the wrong place value.
- D. Henry did not make a mistake.

For questions 16–22, write your answers in the boxes given. In each box, write only one number or symbol.

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



How many square feet will Ren cover with sand?  
Only 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ., and / are allowed in the answer box. Mixed numbers must be entered as an improper fraction or decimal.

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- 17 Katya has a ribbon that is  $6\frac{2}{3}$  yards long. She cuts it into pieces that are  $\frac{5}{9}$  of a yard long. How many pieces does Katya cut?

Only 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ., and / are allowed in the answer box. Mixed numbers must be entered as an improper fraction or decimal.

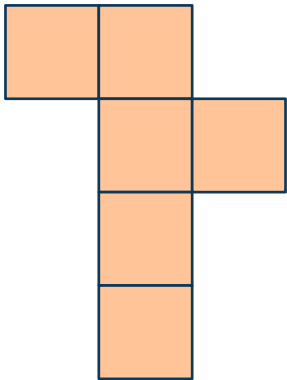
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- 18 Solve  $56.012 - 19.87 = ?$

Only 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ., and / are allowed in the answer box. Mixed numbers must be entered as an improper fraction or decimal.

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19 A cube has a side length of 3.8 inches. The net of the cube is shown below.



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

Only 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ., and / are allowed in the answer box. Mixed numbers must be entered as an improper fraction or decimal.

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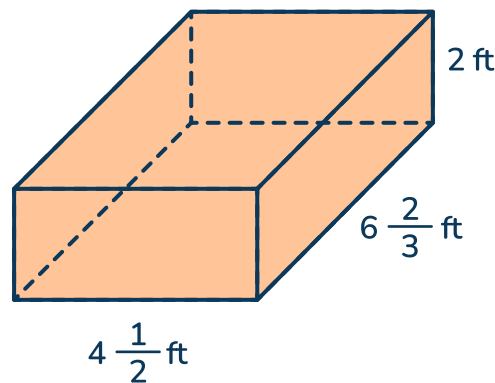
20 Solve  $6(5^2 - 3 + 2) \div \frac{1}{4}$ .

Only 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ., and / are allowed in the answer box. Mixed numbers must be entered as an improper fraction or decimal.

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21 Calculate the volume of the rectangular prism.



Only 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ., and / are allowed in the answer box. Mixed numbers must be entered as an improper fraction or decimal.

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22 Allison, a gym owner, needs \$4,500 for a new roof. She has \$3,120 saved. Allison charges customers \$8 each time they visit the gym. How many customers does she need to have enough money to pay for the new roof?

Only 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ., and / are allowed in the answer box. Mixed numbers must be entered as an improper fraction or decimal.

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THIS IS THE END OF CALCULATOR INACTIVE QUESTIONS

THIS IS THE BEGINNING OF CALCULATOR ACTIVE QUESTIONS

Calculator Can Be Used For Questions 23 - 45



For questions 23 and 24, write your answers in the boxes given. In each box, write only one number or symbol.

23 Hugo and Alessia each started a game with  $x$  points. Hugo has 44% of his points left and Alessia has 62% of her points left. If Hugo has 110 points, how many points does Alessia have?

Only 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ., and / are allowed in the answer box. Mixed numbers must be entered as an improper fraction or decimal.

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24 Aditi writes the expression  $\frac{3 - b}{8} + 2$ . What is the value of the expression when  $b = 1$ ? Record your answer as a decimal.

Only 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ., and / are allowed in the answer box. Mixed numbers must be entered as an improper fraction or decimal.

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25 For every 4 cups of water, there are 6 tablespoons of plant food. Which statement about the ratio is true?

- A. There are 2 cups of water for every tablespoon of plant food.
  - B. For every 12 cups of water, there are 8 tablespoons of plant food.
  - C. There are 6 cups of water for every 9 tablespoons of plant food.
  - D. For every 3 cups of water, there are 5 tablespoons of plant food.
- 

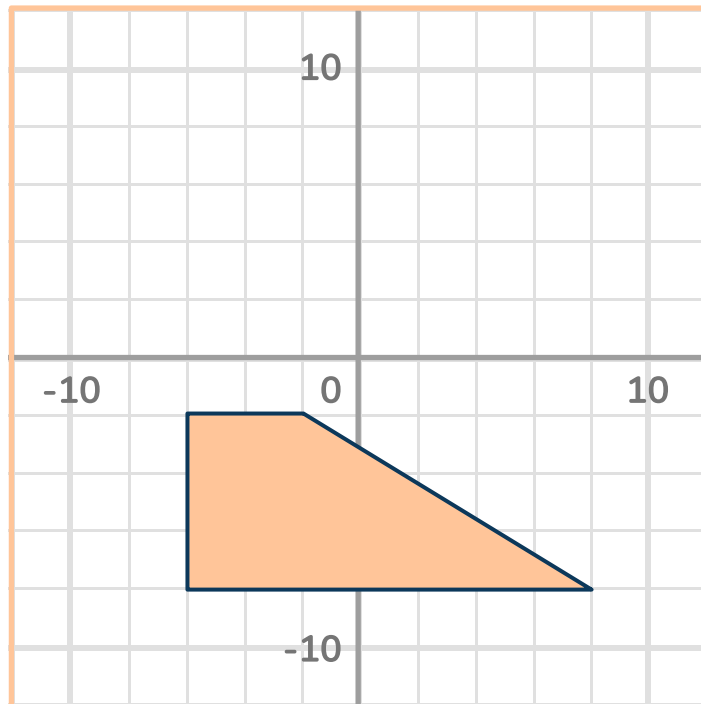
26 A grocery store has 31 red apples and 17 green apples. What is the ratio of green apples to total apples?

- A. 17:48
  - B. 31:17
  - C. 48:31
  - D. 17:31
- 

27 A pair of shoes was on sale for 30% off. After the discount, Jeremy paid \$42 for the pair of shoes. What was the original price?

- A. \$52.60
- B. \$60
- C. \$29.40
- D. \$140

28 What is the area of the shape shown?



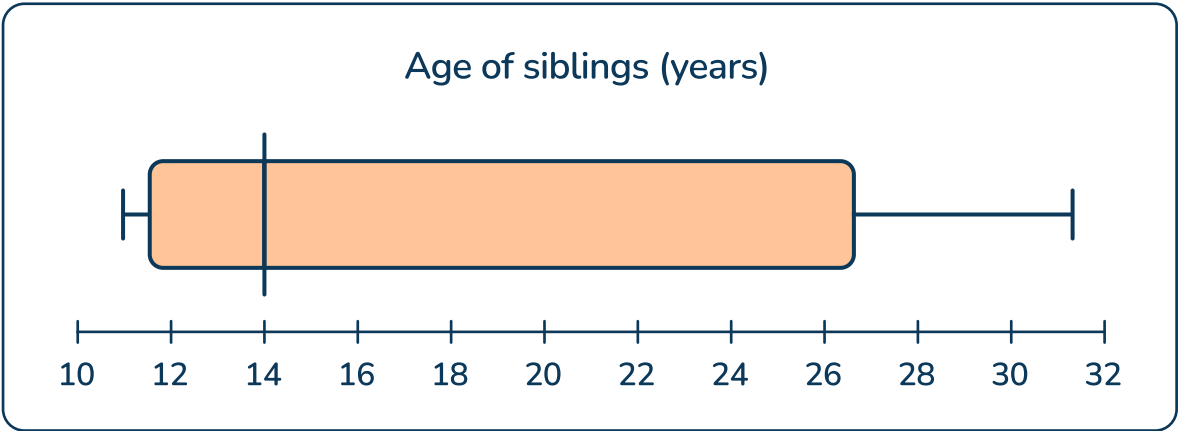
- A. 10.5 units<sup>2</sup>
- B. 13 units<sup>2</sup>
- C. 54 units<sup>2</sup>
- D. 72 units<sup>2</sup>

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29 Which number is a solutions for  $t < -5$ .

- A. -5
- B. -8
- C. -1
- D. 4

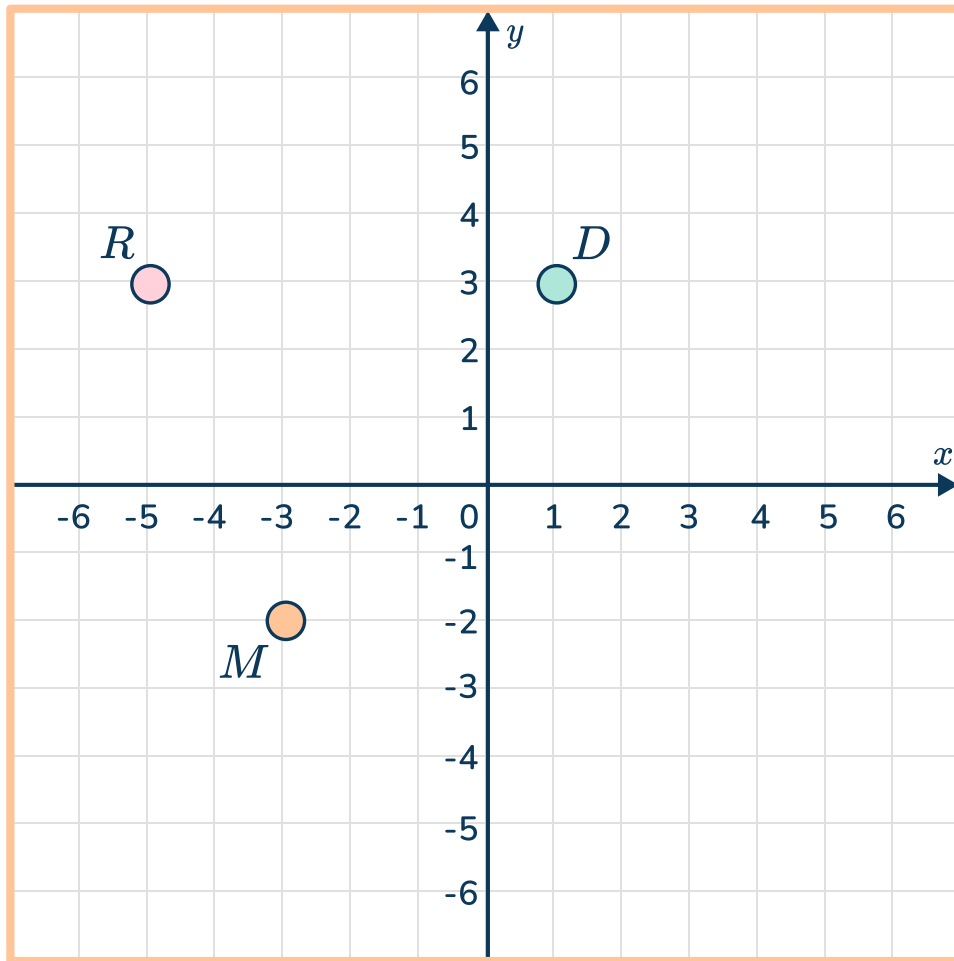
30 Diego surveyed all the 6th graders at his school who had older siblings. He made a box plot of their ages.



Which percent of the students Diego surveyed had a sibling that was 13 years old or younger?

- A. Less than 25%
- B. More than 75%
- C. Between 50% and 75%
- D. Between 25% and 50%

31



- RDMF forms a trapezoid with two right angles.
- The distance from point M to point F is  $\frac{1}{3}$  of the distance from point R to point D.

What are the coordinates of point F?

- A. (-5, -2)
- B. (1, -2)
- C. (-1, -2)
- D. (3, -2)

32 Which expression shows “6 less than the product of  $x$  and 8”?

A.  $6 - \frac{x}{8}$

B.  $\frac{x}{8} - 6$

C.  $8x - 6$

D.  $6 - 8x$

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33 A pet shelter started the weekend with 78 pets. Over the weekend 34 pets were adopted. What percent of pets were not adopted? Round to the nearest tenth of a percent.

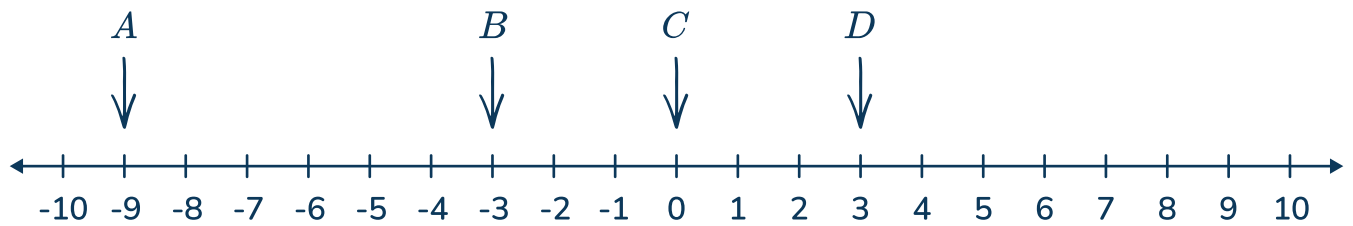
A. 43.6%

B. 56.4%

C. 77.3%

D. 1.8%

- 34 Where is  $-(-3)$  on the number line?



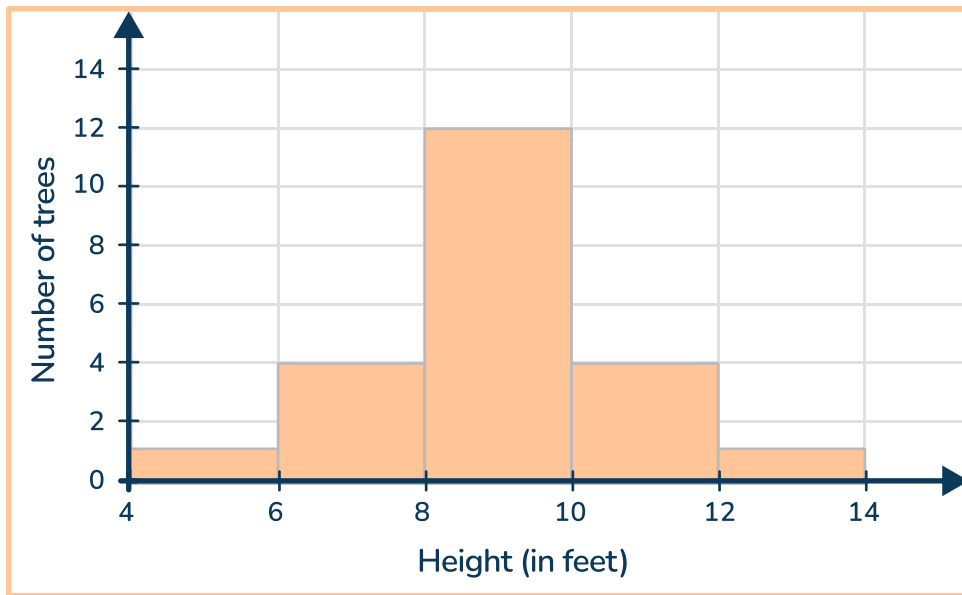
- A. A
- B. B
- C. C
- D. D

- 
- 35 Malik pays \$66 for supplies to sell bags of popcorn. He sells the bags of popcorn for \$5 each. Which equation shows Malik's profit,  $p$ , after selling  $b$  bags of popcorn?

- A.  $b = 5p - 66$
- B.  $66 + 5p = b$
- C.  $p = 5b - 66$
- D.  $66 + 5b = p$



36



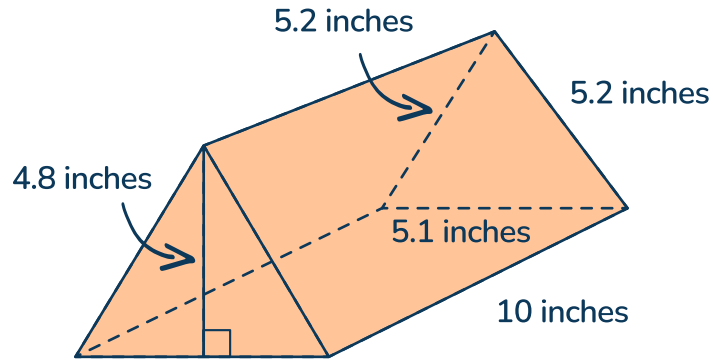
Which statement is true about the data shown in the histogram above?

- A. The data is centered around the bin with the median.
- B. The graph includes data points for 14 trees.
- C. The largest tree is 14 feet tall.
- D. Only whole number tree heights were collected.

37 There are  $3\frac{5}{6}$  cups of tomato sauce in the kitchen. If Chef Dania needs  $\frac{2}{5}$  of a cup of tomato sauce for each recipe, how many complete recipes can she make?

- A.  $9\frac{7}{12}$  recipes
- B.  $10\frac{5}{12}$  recipes
- C. 10 recipes
- D. 9 recipes

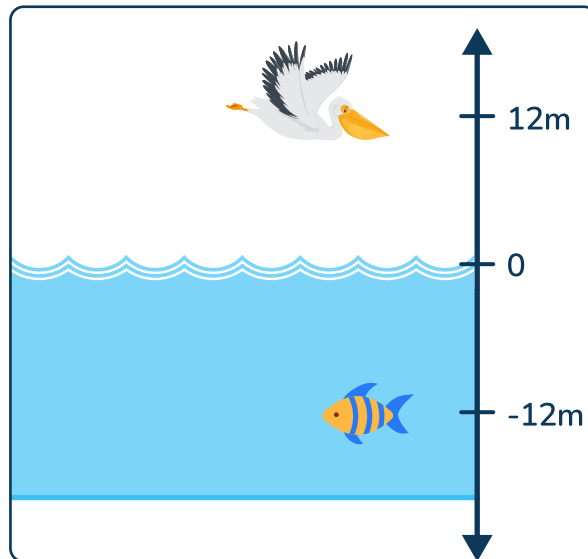
38



Alma is painting the outside of the box above - an isosceles triangular prism. How many square inches does she paint?

- A. 124.8 inches<sup>2</sup>
- B. 179.48 inches<sup>2</sup>
- C. 168.96 inches<sup>2</sup>
- D. 249.6 inches<sup>2</sup>

- 39 The diagram below shows the location of a pelican and fish in comparison to sea level.



Which statement is true?

- A. The pelican is  $12m$  higher than the sea level.
- B. The fish is  $24m$  above the pelican.
- C. The water the fish is in measures  $-12$  degrees.
- D. The sea level is at  $-12m$ , with the pelican  $12m$  above it.

40 For the paint color orange, the ratio of ounces of white paint to red paint is 2:5. What is a possible mixture that will create orange?

- A. 25 ounces of white and 10 ounces of red
- B. 16 ounces of white and 19 ounces of red
- C. 22 ounces of red and 55 ounces of white
- D. 60 ounces of red and 24 ounces of white

41 Kellan is collecting data on two water filters.

Water Filter A	
Time (minutes)	Ounces filtered
3	54
4	72
7	126

Water Filter B	
Time (minutes)	Ounces filtered
2	38
5	95
6	114

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

- A. Filter A is faster by 16 ounces per minute
- B. Filter B is faster by 16 ounces per minute
- C. Filter A is faster by 1 ounce per minute
- D. Filter B is faster by 1 ounce per minute

42 Margot is five years older than her brother Tory. Which equation shows the relationship between Margot’s age,  $m$ , and Tory’s age,  $t$ .

- A.  $t - 5 = m$
- B.  $t + 5 = m$
- C.  $m + t = 5$
- D.  $t - m = 5$

43 Jesse and Celia were collecting canned foods for a fundraiser. The table shows how many cans Jesse and Celia collected each week.

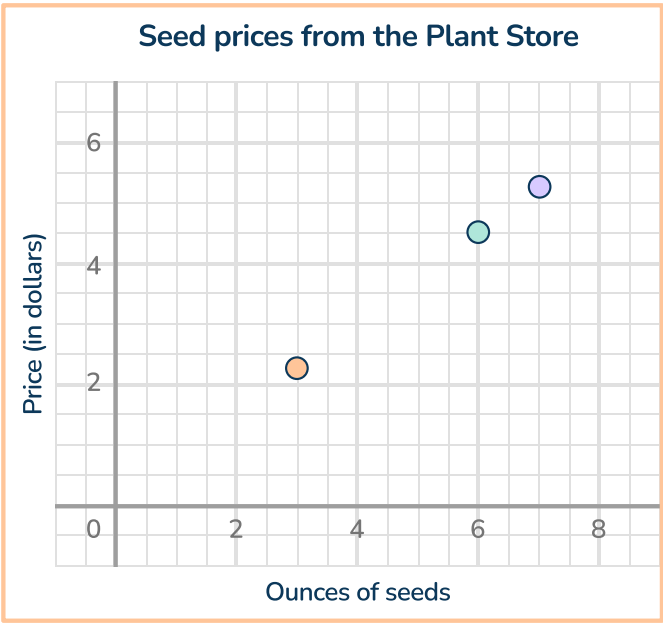
	Jesse	Celia
Week 1	45	31
Week 2	51	28
Week 3	46	85
Week 5	79	91

- A. Celia’s median number of cans is greater than her mean.
- B. Jesse’s median number of cans is greater than Celia’s.
- C. Jesse’s mean number of cans is greater than her median.
- D. Celia’s mean number of cans is 5 cans greater than Jesse’s.

44 Which of the following is a statistical question?

- A. What was the final score of Livie’s soccer game today?
- B. How many goals did Livie score this season?
- C. What is the average number of goals scored by Livie’s team this year?
- D. How many more years does Livie want to play soccer?

45 The graph, table and equation show the price of seeds at three different places.



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

A Hardware store sells seeds in packages of 3 ounces. They use the equation  $1.95p = t$ , where  $p$  is the number of packages and  $t$  is the total price.

Which sells the most expensive seeds per ounce?

- A. The Plant store
- B. The farmer
- C. The Hardware store
- D. The seeds cost the same per ounce for each

## Answer Key - Multiple Choice

Item number	Correct answer	Standard(s)	DOK
1	D	NC.6.EE.1	DOK 2
2	C	NC.6.NS.6a	DOK 1
3	B	NC.6.EE.3	DOK 1
4	A	NC.6.NS.9	DOK 1
5	D	NC.6.RP.3	DOK 2
6	B	NC.6.NS.1	DOK 3
7	A	NC.6.EE.8	DOK 2
8	C	NC.6.SP.3a	DOK 1
9	D	NC.6.NS.4	DOK 1
10	A	NC.6.NS.3	DOK 1
11	C	NC.6.EE.5	DOK 1
12	C	NC.6.G.4	DOK 1
13	A	NC.6.SP.4	DOK 2
14	D	NC.6.NS.7	DOK 1
15	C	NS.6.NS.2	DOK 3
16	13.65	NC.6.G.1	DOK 2
17	12	NC.6.NS.1	DOK 2
18	36.142	NC.6.NS.3	DOK 1
19	54.872	NC.6.G.2	DOK 2

## North Carolina State Practice Math Test | Grade 6 | Answers

Item number	Correct answer	Standard(s)	DOK
20	576	NC.6.EE.1	DOK 1
21	60	NC.6.G.2	DOK 1
22	173	NC.6.NS.2	DOK 2
23	155	NC.6.RP.4	DOK 2
24	2.25	NC.6.EE.2	DOK 1
25	C	NC.6.RP.1	DOK 2
26	A	NC.6.RP.1	DOK 1
27	B	NC.6.RP.4	DOK 2
28	C	NC.6.G.1, NC.6.G.3	DOK 2
29	B	NC.6.EE.8	DOK 1
30	D	NC.6.SP.4	DOK 2
31	A	NC.6.NS.8	DOK 2
32	C	NC.6.EE.2	DOK 1
33	B	NC.6.RP.4	DOK 2
34	D	NC.6.NS.6a	DOK 1
35	C	NC.6.EE.9	DOK 2
36	A	NC.6.SP.5	DOK 2
37	D	NC.6.NS.1	DOK 2
38	B	NC.6.G.4	DOK 2
39	A	NC.6.NS.5	DOK 2
40	D	NC.6.RP.1	DOK 2



North Carolina State Practice Math Test | Grade 6 | Answers

Item number	Correct answer	Standard(s)	DOK
41	D	NC.6.RP.3	DOK 2
42	B	NC.6.EE.6	DOK 2
43	C	NC.6.SP.3a	DOK 2
44	C	NC.6.SP.1	DOK 1
45	A	NC.6.RP.3	DOK 2

ANSWERS SORTED BY STRAND

RP			
5	D	NC.6.RP.3	DOK 2
23	155	NC.6.RP.4	DOK 2
25	C	NC.6.RP.1	DOK 2
26	A	NC.6.RP.1	DOK 1
27	B	NC.6.RP.4	DOK 2
33	B	NC.6.RP.4	DOK 2
40	D	NC.6.RP.1	DOK 2
41	D	NC.6.RP.3	DOK 2
45	A	NC.6.RP.3	DOK 2

North Carolina State Practice Math Test | Grade 6 | Answers

NS			
2	C	NC.6.NS.6a	DOK 1
4	A	NC.6.NS.9	DOK 1
6	B	NC.6.NS.1	DOK 3
9	D	NC.6.NS.4	DOK 1
10	A	NC.6.NS.3	DOK 1
14	D	NC.6.NS.7	DOK 1
15	C	NS.6.NS.2	DOK 3
17	12	NC.6.NS.1	DOK 2
18	36.142	NC.6.NS.3	DOK 1
22	173	NC.6.NS.2	DOK 2
31	A	NC.6.NS.8	DOK 2
34	D	NC.6.NS.6a	DOK 1
37	D	NC.6.NS.1	DOK 2
39	A	NC.6.NS.5	DOK 2

North Carolina State Practice Math Test | Grade 6 | Answers

EE			
1	D	NC.6.EE.1	DOK 2
3	B	NC.6.EE.3	DOK 1
7	A	NC.6.EE.8	DOK 2
11	C	NC.6.EE.5	DOK 1
20	576	NC.6.EE.1	DOK 1
24	2.25	NC.6.EE.2	DOK 1
29	B	NC.6.EE.8	DOK 1
32	C	NC.6.EE.2	DOK 1
35	C	NC.6.EE.9	DOK 2
42	B	NC.6.EE.6	DOK 2

G			
12	C	NC.6.G.4	DOK 1
16	13.65	NC.6.G.1	DOK 2
19	54.872	NC.6.G.2	DOK 2
21	60	NC.6.G.2	DOK 1
28	C	NC.6.G.1, NC.6.G.3	DOK 2
38	B	NC.6.G.4	DOK 2




SP			
8	C	NC.6.SP.3a	DOK 1
13	A	NC.6.SP.4	DOK 2
30	D	NC.6.SP.4	DOK 2
36	A	NC.6.SP.5	DOK 2
43	C	NC.6.SP.3a	DOK 2
44	C	NC.6.SP.1	DOK 1

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- ✓ Aligned to your state's standard
- ✓ Scaffolded learning to close gaps

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