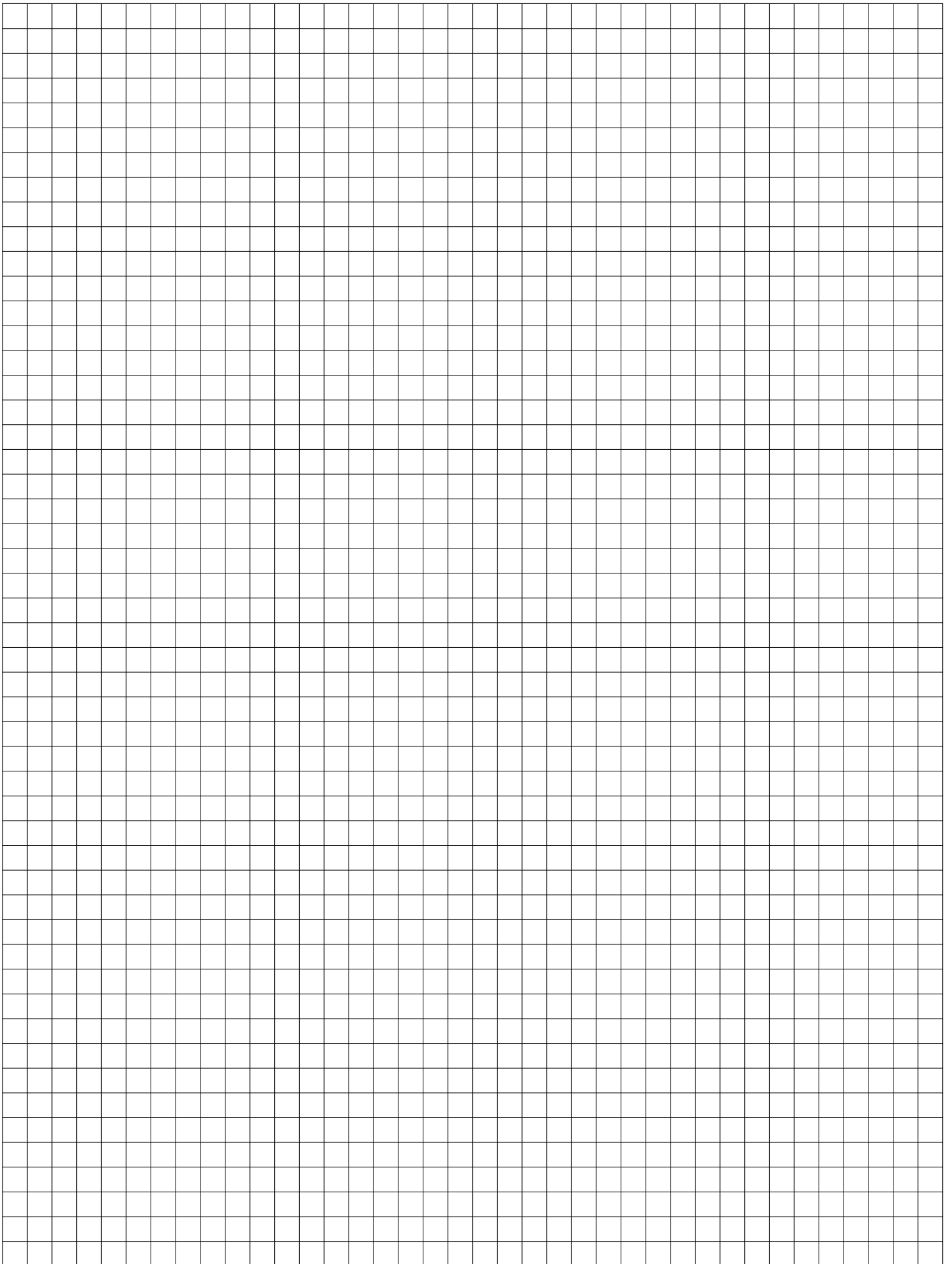


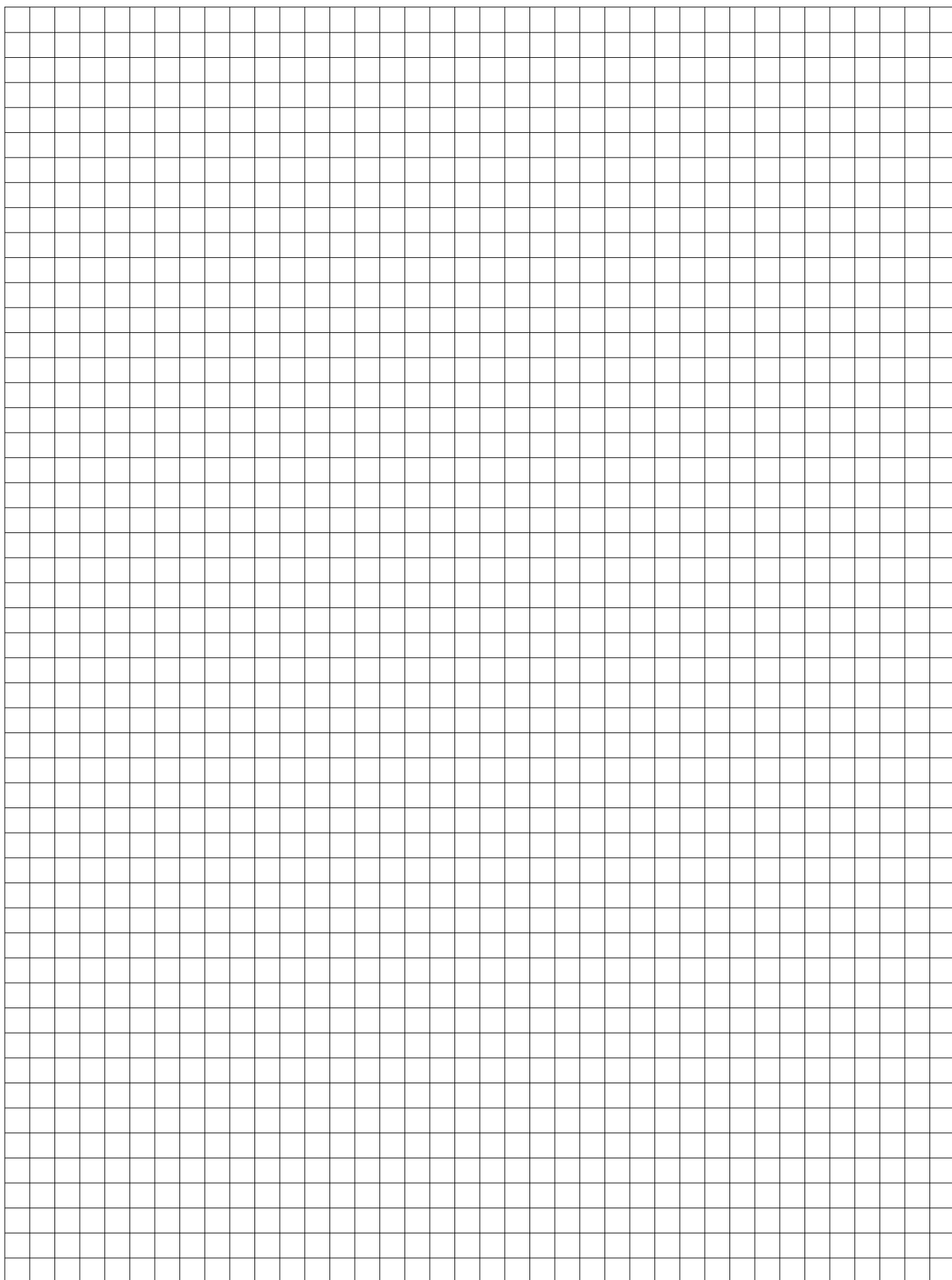


Beginning-of-Year Assessment (BOY)

Grade 7 Mathematics Standards

This BOY assessment is intended to assess current grade 8 students who completed grade 7 mathematics in the 2019-2020 school year.





Congratulations! You worked very hard in school to learn many new things. Taking this Grade 7 Mathematics Standards test is a great way to show your family and school what you learned. It is okay if you do not know all the answers. Just try your best. You are amazing! You are taking this test so adults can learn more about how to help you this year.

You can ask an adult for help if you do not understand the directions. Make sure you have the reference material with the rulers. It might help you with this test. You can also use scratch paper and graph paper for this test.

If you do not know the answer to a question, choose the answer you think might be correct. You must answer the questions on your own.

You are now ready to start. Take your time and remember that trying your best is what is important. You're awesome, and you'll do great!



BOY Assessment Grade 7 Mathematics Standards

Student _____
Class _____
Date _____

1. A recipe says to use 3 cups of flour to make 48 cookies. What is the constant of proportionality that relates the number of cookies made, y , to the number of cups of flour used, x ?
- A. 0.6
 - B. 48
 - C. 3
 - D. 16

2. Nerissa has 5 pink bows, 1 blue bow, and 4 purple bows in a box. She will randomly choose 1 bow from the box.

What is the probability Nerissa will choose a purple bow?

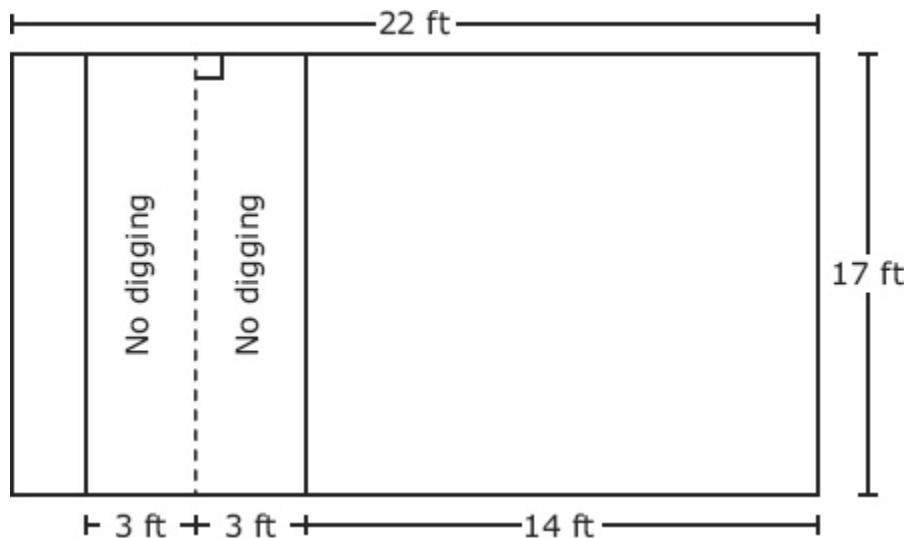
A. $\frac{1}{2}$

B. $\frac{2}{5}$

C. $\frac{1}{10}$

D. $\frac{3}{5}$

3. A utility line runs underground through Shayne's rectangular backyard. Shayne is not allowed to dig within 3 feet of the utility line. The diagram below shows the dimensions of Shayne's backyard in feet. The dashed line represents the utility line.



What is the area in square feet of the part of the backyard in which Shayne is allowed to dig?

- A. 272 ft^2
- B. 374 ft^2
- C. 102 ft^2
- D. 59 ft^2

4. The manager of a movie theater randomly surveyed 50 people who entered the movie theater on Friday. The manager asked about the type of movie each person preferred. The results of the survey are shown in the table.

Survey Results

Type of Movie	Number of People
Horror	12
Comedy	15
Action	17
Drama	6

Based on the results in the table, which statement about a person who will go to this theater next Friday is true?

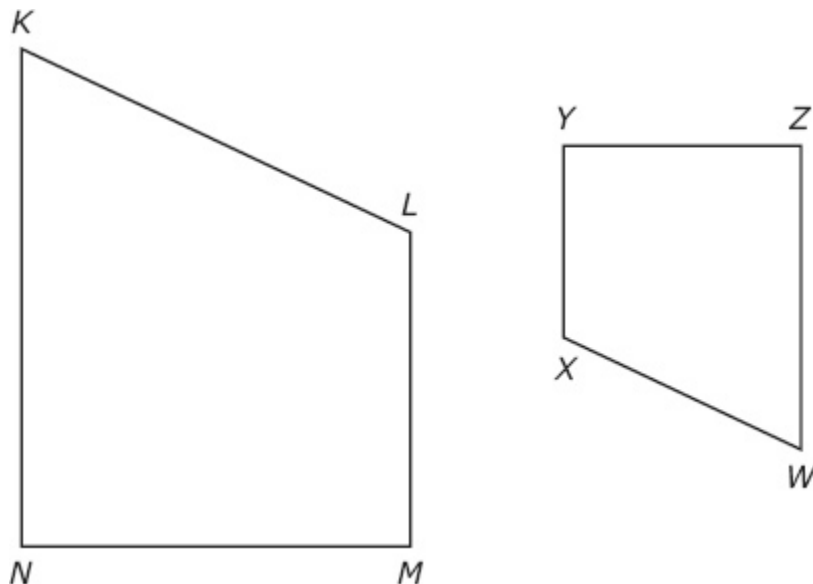
- A. The person is three times as likely to prefer comedy as horror.
- B. The person is twice as likely to prefer drama as horror.
- C. The person is less likely to prefer horror or drama than action.
- D. The person is more likely to prefer horror or comedy than action or drama.

5. Marsha gave the cashier \$20 to pay for 3 pairs of socks. The cashier gave her \$5.03 in change. Each pair of socks cost the same amount.

What is the cost in dollars and cents for each pair of socks?

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

6. Quadrilateral $KLMN$ is similar to quadrilateral $WXYZ$.



Which statement about these quadrilaterals must be true?

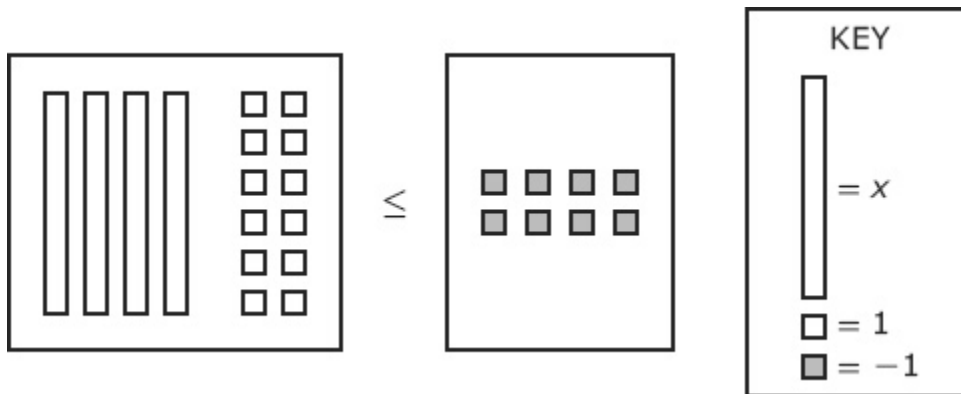
A. $\frac{KL}{WX} = \frac{WZ}{KN}$

B. Angle NKL is congruent to angle ZWX .

C. $\frac{KL}{YZ} = \frac{LM}{ZW}$

D. Angle NKL is congruent to angle XYZ .

7. The model represents an inequality.



What is the solution set for the inequality?

- A. $x \leq -5$
- B. $x \leq 5$
- C. $x \leq 1$
- D. $x \leq -14$

8. Emily created the net worth statement shown.

Net Worth Statement

Assets	
Checking account	\$750
Automobile (current value)	\$8,950
House (current value)	\$92,500
Savings account	\$1,350
Investments	\$4,000
Total Assets	\$107,550
Liabilities	
Credit card debt	\$3,800
Student loans	\$15,750
Personal loans	\$975
Total Liabilities	\$20,525

Based on the information in the table, what is Emily's net worth?

- A. \$107,550
- B. \$87,025
- C. \$20,525
- D. \$128,075

9. Bailey will roll a number cube and flip a coin for a probability experiment. The faces of the number cube are labeled 1 through 6. The coin can land on heads or tails. If Bailey rolls the number cube once and flips the coin once, which list contains only the outcomes in which the number cube lands on a number greater than 4?

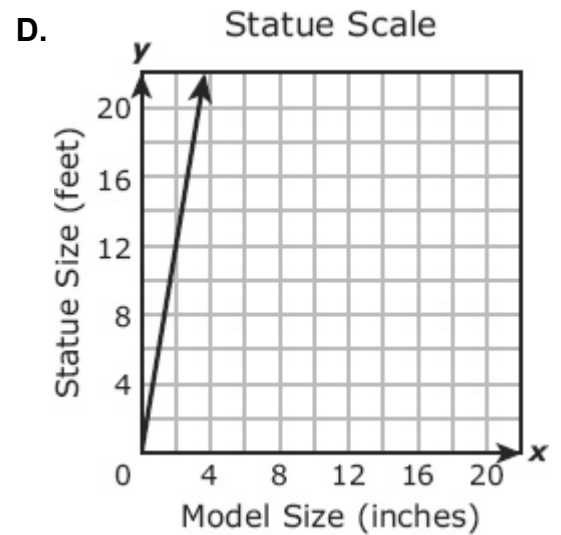
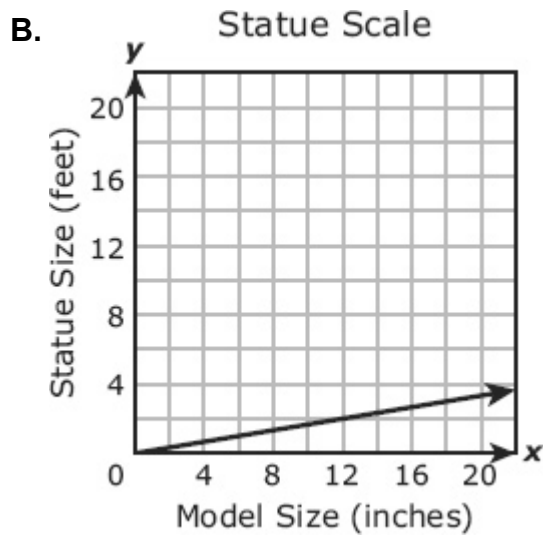
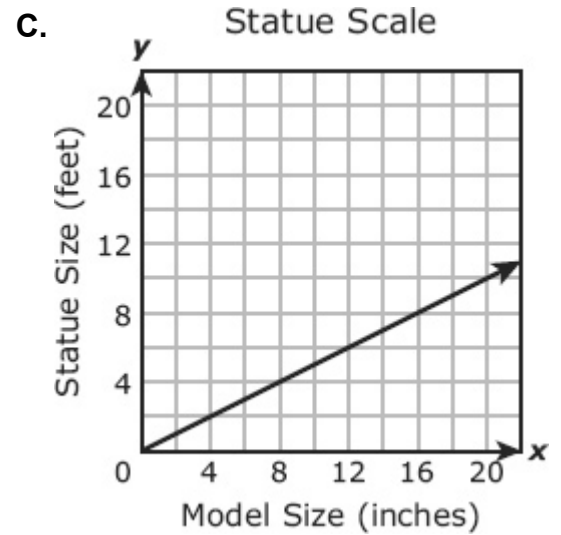
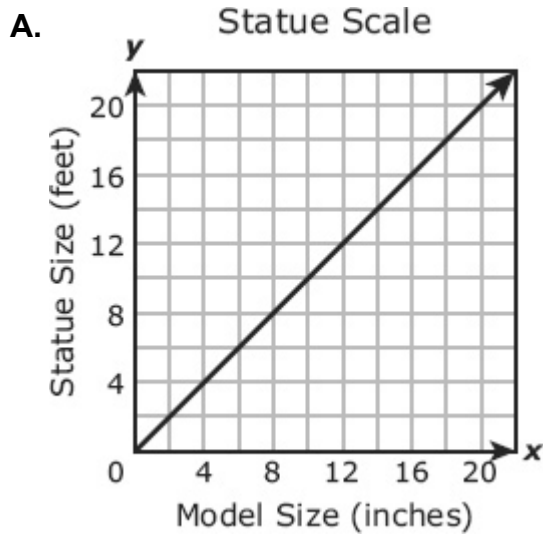
A. 5, Heads
5, Tails
6, Heads
6, Tails

B. 5, Heads
6, Tails

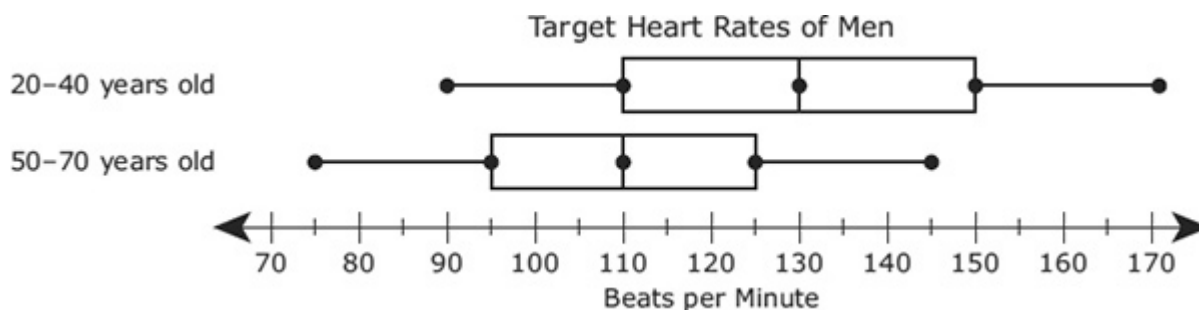
C. 1, Heads
1, Tails
2, Heads
2, Tails
3, Heads
3, Tails
4, Heads
4, Tails
5, Heads
5, Tails
6, Heads
6, Tails

D. 4, Heads
4, Tails
5, Heads
5, Tails
6, Heads
6, Tails

10. An artist is making a scale model of a statue. On the model 2 inches represents 1 foot on the actual statue. Which graph best represents this relationship?



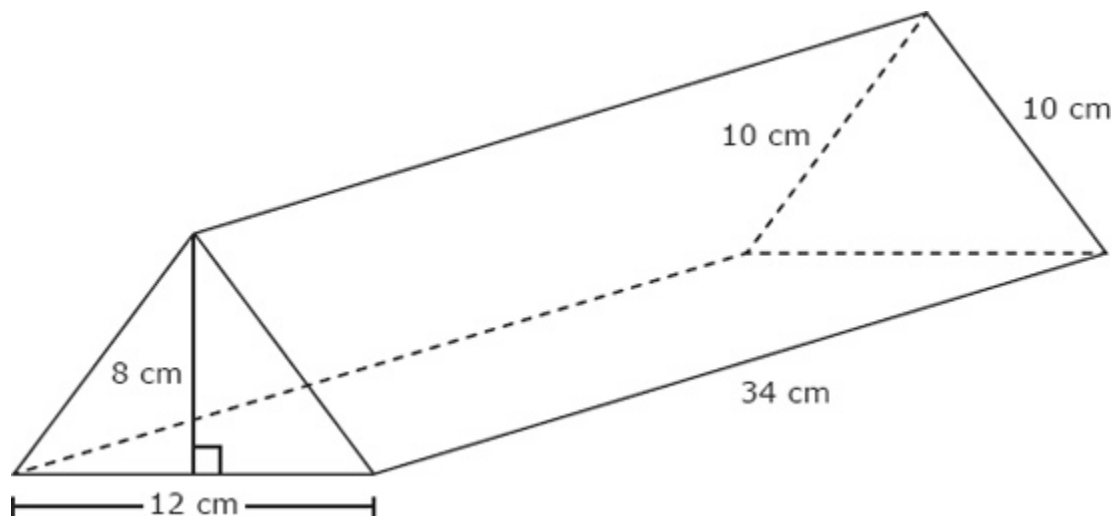
11. The box plots show the target heart rates of men 20–40 years old and men 50–70 years old.



Which statement is best supported by the information in the box plots?

- A. The range of the data for men 20–40 years old is less than the range of the data for men 50–70 years old.
- B. The median of the data for men 20–40 years old is less than the median of the data for men 50–70 years old.
- C. The minimum target heart rate for men 20–40 years old is less than the minimum target heart rate for men 50–70 years old.
- D. The interquartile range of the data for men 20–40 years old is greater than the interquartile range of the data for men 50–70 years old.

12. The dimensions of a triangular prism are shown in the diagram.



What is the volume of the triangular prism in cubic centimeters?

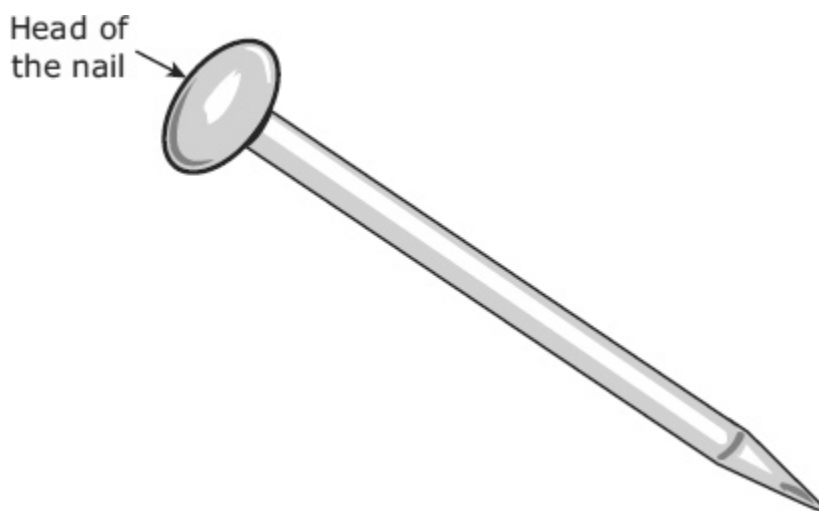
- A. 1,360 cm^3
- B. 408 cm^3
- C. 1,632 cm^3
- D. 816 cm^3

13. Which situation is best represented by the following equation?

$$45w + 123.95 = 753.95$$

- A. Erica paid \$753.95 for dance classes. She paid a \$123.95 registration fee and \$45 for each week she was enrolled in the classes. What is w , the number of weeks Erica was enrolled in dance classes?
- B. Erica paid \$753.95 for dance classes. She paid a \$45 registration fee and \$123.95 for each week she was enrolled in the classes. What is w , the number of weeks Erica was enrolled in dance classes?
- C. Erica and her sister paid \$753.95 for dance classes. Erica paid \$123.95 for each week she was enrolled in the classes, and her sister paid \$45 for each week she was enrolled in the classes. What is w , the number of weeks Erica and her sister were enrolled in dance classes?
- D. Erica paid \$753.95 for dance classes. She paid \$123.95 for each week she was enrolled in the classes after using a coupon that gave her \$45 off the price per week. What is w , the number of weeks Erica was enrolled in dance classes?

14. The head of a nail is circular, as shown. The head of this nail has a diameter of 6 millimeters.



Which measurement is closest to the area of the head of this nail in square millimeters?

- A. 9.42 mm^2
- B. 113.04 mm^2
- C. 28.26 mm^2
- D. 37.68 mm^2

15. The price of a sweater was reduced from \$20 to \$12. By what percentage was the price of the sweater reduced?

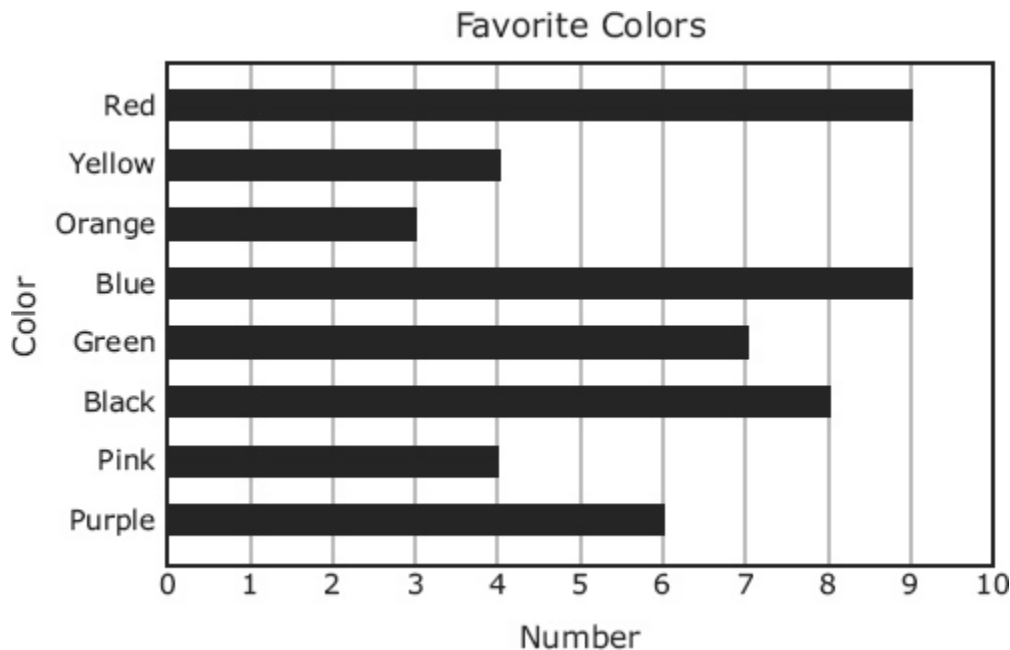
A. 8%

B. 80%

C. 60%

D. 40%

16. The graph shows the favorite colors chosen by some middle school students.



Which statement is supported by the information in the graph?

- A. Fewer than 30% of the students chose red, yellow, or orange as their favorite color.
- B. More than $\frac{1}{10}$ of the students chose pink as their favorite color.
- C. Exactly 18% of the students chose blue as their favorite color.
- D. Exactly $\frac{2}{5}$ of the students chose green, black, or purple as their favorite color.

17. The table shows the distance, y , a cheetah can travel in feet in x seconds.

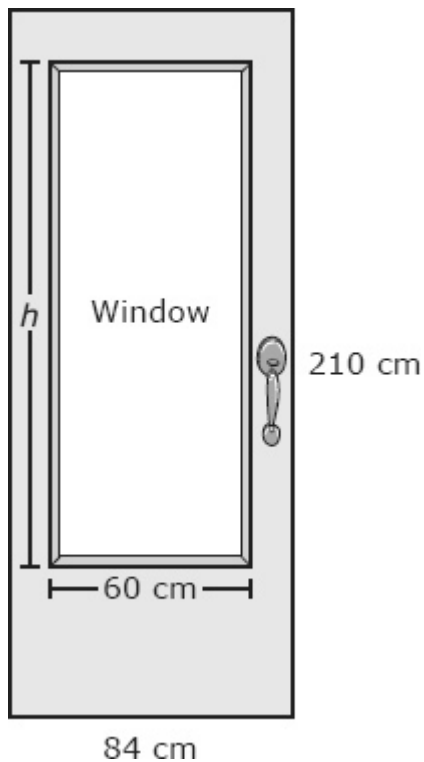
Speed of a Cheetah

Time, x (seconds)	Distance, y (feet)
5	470
10	940
15	1,410
20	1,880
25	2,350

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

- A. $y = 5x$
- B. $y = x + 5$
- C. $y = x + 470$
- D. $y = 94x$

18. The diagram shows a door that has a window in it. The front faces of the door and the window are similar rectangles that have the dimensions shown.



What is h , the height of the window in centimeters?

- A. 66 cm
- B. 186 cm
- C. 150 cm
- D. Not here

19. A bag contains colored tiles.

- 3 tiles are red
- 6 tiles are green
- 3 tiles are blue

A tile will be randomly selected from the bag. What is the probability in decimal form that the tile selected will be green?

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

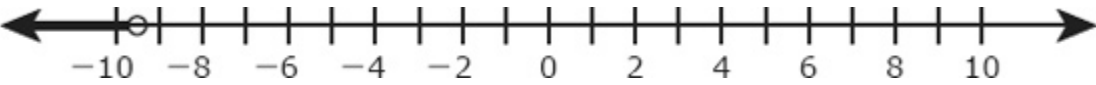
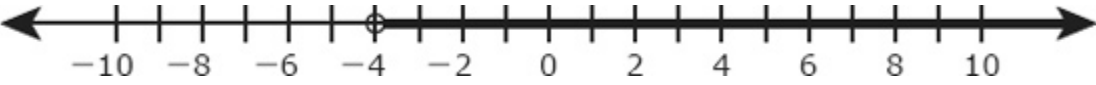

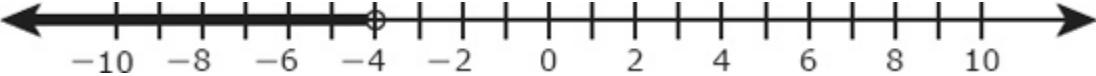
20. A music club has 15 members. Each member pays monthly dues of \$14.60. On the first day of the month, 8 members paid their dues. The remaining members paid their dues on the second day of the month. How much money was collected in dues on the second day of the month?

- A.** \$335.80
- B.** \$102.20
- C.** \$116.80
- D.** \$219.00

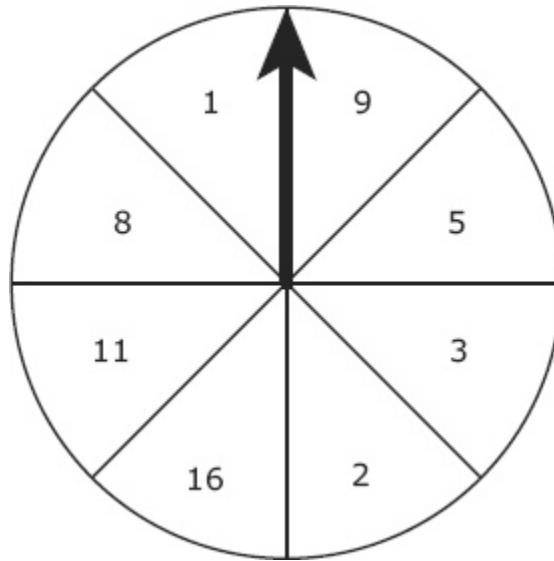
21. Chloe is 5 feet 4 inches tall. There are 2.54 centimeters in 1 inch. What is Chloe's height in centimeters?

- A. 56.54 cm
- B. 13.72 cm
- C. 162.56 cm
- D. 152.40 cm

22. Which number line best represents the solution to the inequality $3.3w - 9 > -22.2$?

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

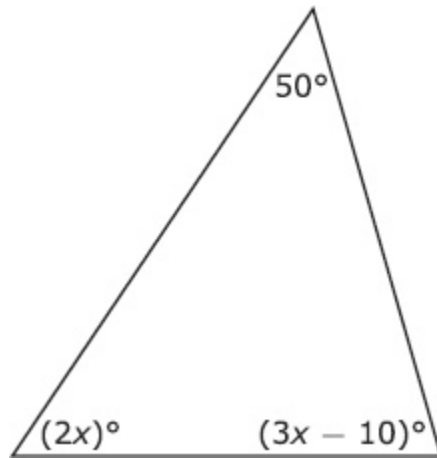
23. The spinner shown has eight congruent sections.



The spinner is spun 120 times. What is a reasonable prediction for the number of times the spinner will land on an even number?

- A. 75
- B. 45
- C. 15
- D. 40

24. The angle measures of a triangle are shown in the diagram.



What is the value of x ?

- A. 25
- B. 20
- C. 10
- D. 28

- 25.** A fish is swimming at a constant rate toward the ocean floor. The equation $y = -7x - 3$ can be used to represent this situation, where y is the depth of the fish in meters below sea level and x is the number of seconds the fish has been swimming.

Which statement best describes the depth of the fish, given this equation?

- A.** From a starting position of 7 meters below sea level, the fish is descending 3 meters per second.
- B.** From a starting position of 7 meters below sea level, the fish is ascending 3 meters per second.
- C.** From a starting position of 3 meters below sea level, the fish is descending 7 meters per second.
- D.** From a starting position of 3 meters below sea level, the fish is ascending 7 meters per second.

26. A group of students formed a circle during a game. The circumference of the circle was about 43.96 feet, and the diameter of the circle was 14 feet.

Which expression best represents the value of π ?

A. $\frac{43.96}{7}$

B. $\frac{43.96}{14}$

C. $\frac{7}{43.96}$

D. $\frac{14}{43.96}$

27. If $x = -6$, which inequality is true?

A. $-5 - 3x > 10$

B. $-3 - 5x < -14$

C. $1 - 2x > 13$

D. $2 - x < -3$

28. A refrigerator is priced at \$525.50. There is a 6% sales tax rate. What is the sales tax for the refrigerator in dollars and cents?

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

29. What is the value of the expression $6\frac{3}{4}(-11.5)$?

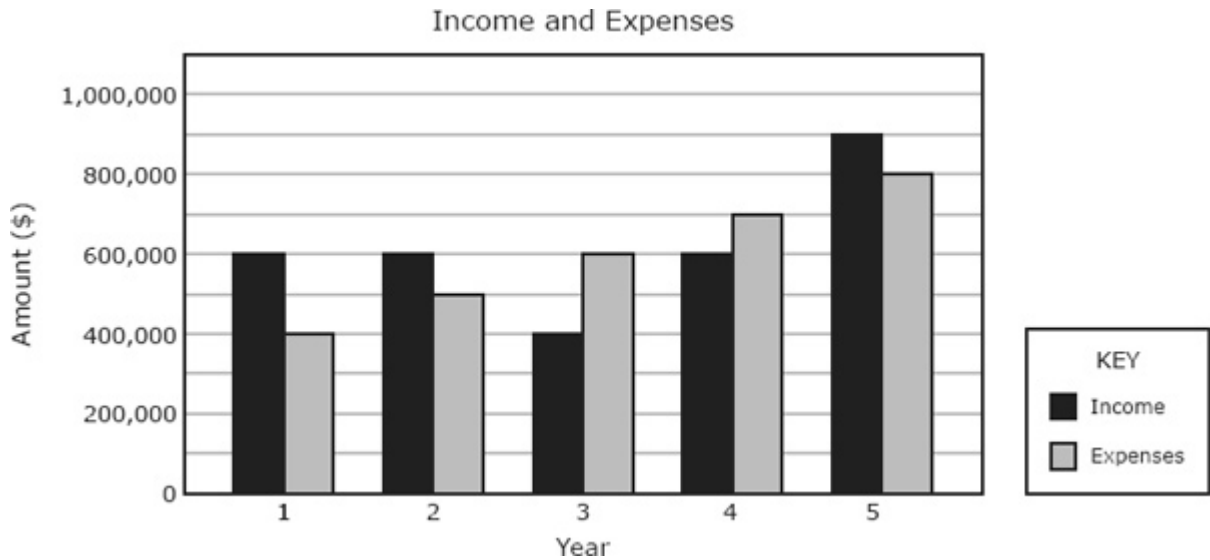
A. $77\frac{5}{8}$

B. $69\frac{3}{4}$

C. $-77\frac{5}{8}$

D. $-69\frac{3}{4}$

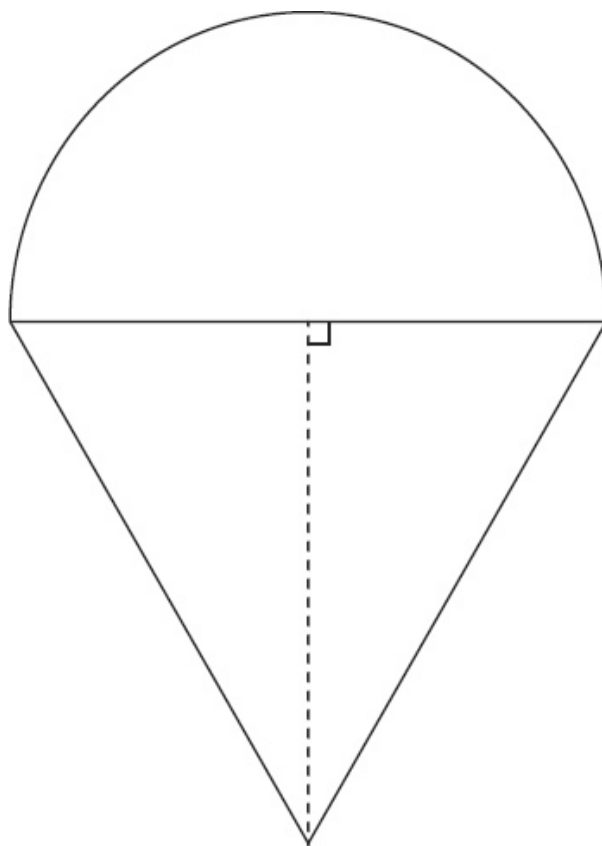
30. The bar graph shows a company's income and expenses over the last 5 years.



Which statement is supported by the information in the graph?

- A. Expenses have increased \$200,000 each year over the last 5 years.
- B. The income in Year 5 was twice the income in Year 1.
- C. The combined income in Years 1, 2, and 3 was equal to the combined expenses in Years 1, 2, and 3.
- D. The combined expenses in Years 3 and 4 were \$300,000 more than the combined income in Years 3 and 4.

31. A figure was created using a triangle and a semicircle. Use the ruler provided to measure the dimensions of the triangle and the semicircle to the nearest centimeter.



Which measurement is closest to the area of the figure in square centimeters?

- A. 78 cm^2
- B. 81 cm^2
- C. 106 cm^2
- D. 53 cm^2

32. Zachary is buying 4 tires for his car. The table shows the prices and the advertised sales for the same type of tire at 4 tire stores.

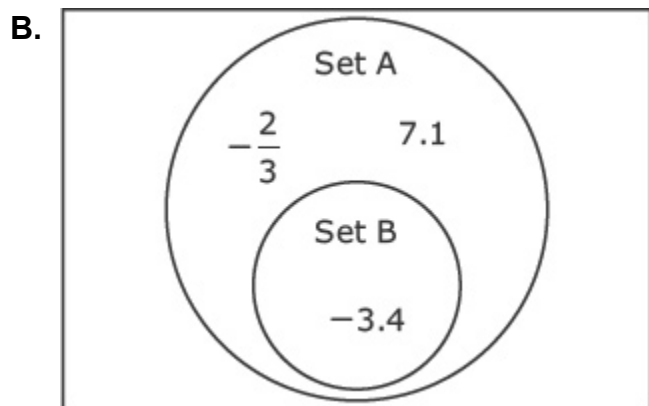
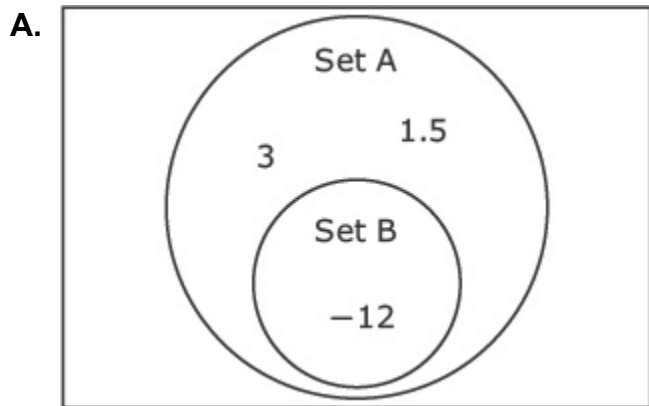
Tire Store Sales

Store	Price per Tire	Advertised Sale
R	\$150	Buy 3 tires and get the 4th tire free
S	\$200	Buy 4 tires and receive \$70 off the price of each tire
T	\$175	Buy 4 tires and receive \$200 off the total price
V	\$130	Buy 4 tires and receive 10% off the total price

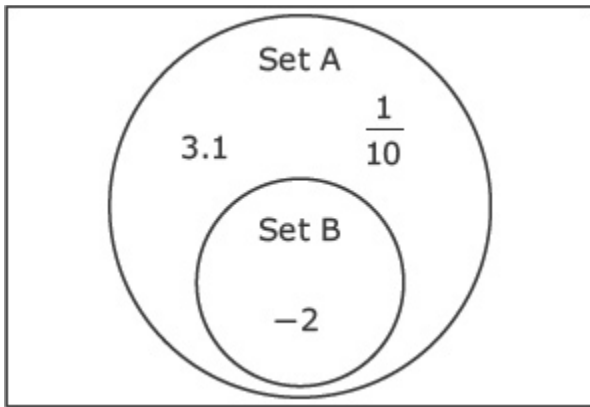
Based on the advertised sales, at which store will Zachary get the lowest price on 4 tires?

- A. Store R
- B. Store S
- C. Store T
- D. Store V

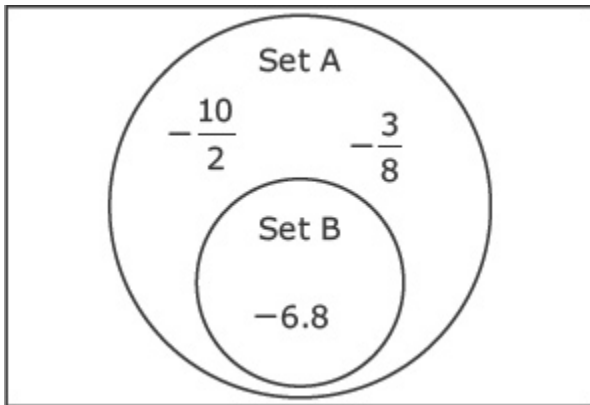
33. Set A represents rational numbers. Set B represents integers. Which diagram shows the numbers placed in the correct sets?



C.



D.



34. A worker uses 450 inches of steel wire to make 300 springs of the same size. At this rate how many inches of steel wire are needed to make 1 spring?

A. $\frac{1}{3}$ in.

B. $\frac{1}{15}$ in.

C. $\frac{2}{3}$ in.

D. $1\frac{1}{2}$ in.

35. The distance between two cities on a map is 3.5 centimeters. The map uses a scale in which 1 centimeter represents 20 kilometers. What is the actual distance between these two cities in kilometers?

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

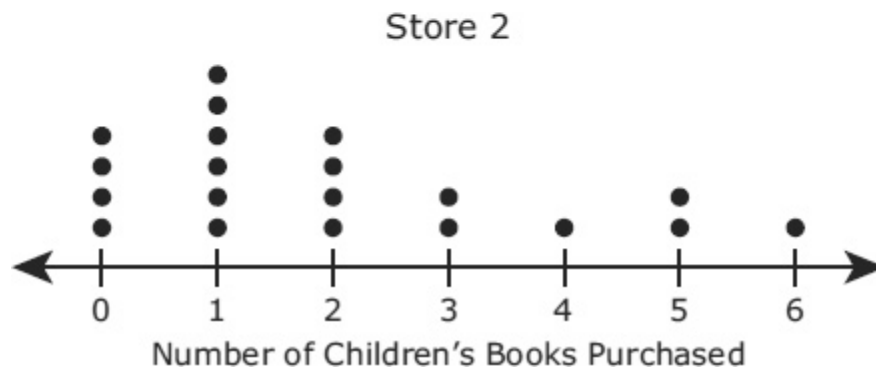
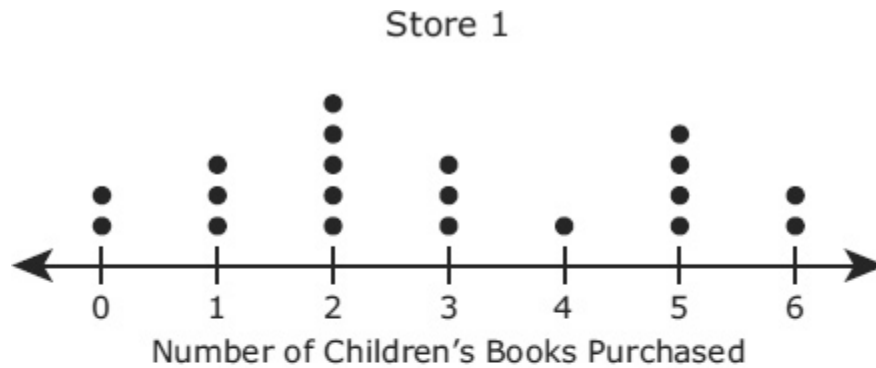
36. Walter and Brian each have a CD collection.

- The number of CDs in Walter's collection can be represented by x .
- The number of CDs in Brian's collection is 3 times the number in Walter's collection.
- The total number of CDs in both collections is 144.

What is x , the number of CDs in Walter's collection?

- A.** 108
- B.** 48
- C.** 72
- D.** 36

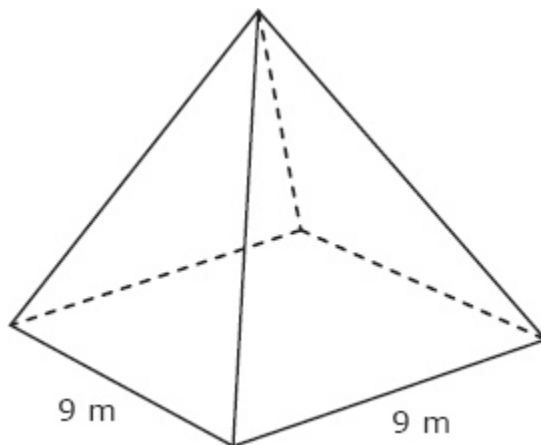
37. The dot plots show the numbers of children's books purchased by customers at two different bookstores on one day.



Which statement is supported by the information in the dot plots?

- A. The mode of the data for Store 2 is greater than the mode of the data for Store 1.
- B. The range of the data for Store 1 is greater than the range of the data for Store 2.
- C. The mean of the data for Store 1 is greater than the mean of the data for Store 2.
- D. The median of the data for Store 2 is greater than the median of the data for Store 1.

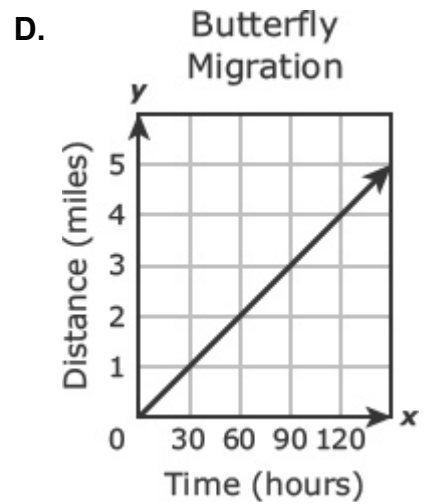
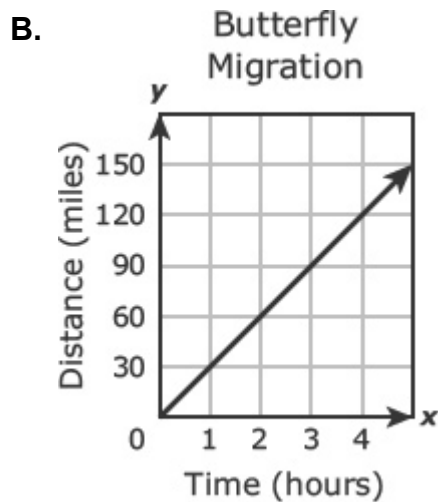
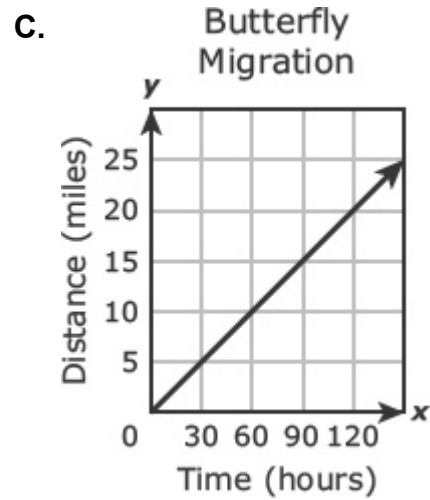
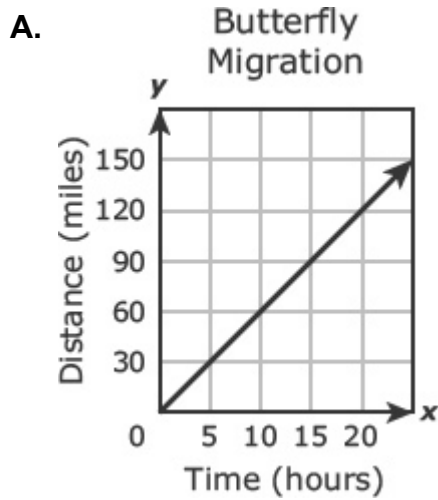
38. Some of the dimensions of a square pyramid are shown in the diagram. The height of the square pyramid is 7.5 meters.



What is the volume of the square pyramid in cubic meters?

- A. 202.5 m³
- B. 303.75 m³
- C. 270 m³
- D. 243 m³

39. During migration, a butterfly can travel 30 miles in 1 hour. Which graph best represents y , the number of miles a butterfly can travel in x hours?



40. A circle has a diameter of 7.6 feet. Which measurement is closest to the circumference of the circle in feet?

A. 23.9 ft

B. 45.3 ft

C. 47.7 ft

D. 11.9 ft

