

1. The table below lists the number of pounds of water and the number of pounds of flour needed to make pizza dough.

Water (lbs)	Flour (lbs)
21	35
$w$	50
36	60
45	75
57	95

There is a common ratio of weight of flour to weight of water. Which statement describes the ratio of weight of flour to weight of water and the value of  $w$  in the table?

- The ratio is  $\frac{3}{5}$ ;  $w = 28$
- The ratio is  $\frac{5}{3}$ ;  $w = 28$
- The ratio is  $\frac{3}{5}$ ;  $w = 30$
- The ratio is  $\frac{5}{3}$ ;  $w = 30$

2. The table below shows different combinations of buying a number of hamburgers and the total cost.

Number of Hamburgers	Total Cost
5	\$12.00
16	\$38.40
25	\$60.00
32	\$76.80

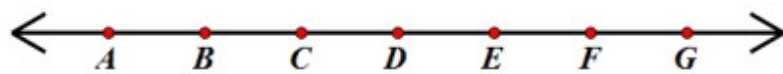
Which ratio of the number of hamburgers purchased to the total cost could also be included in the table above?

- 12 : 25.00
- 24 : 57.60
- 38 : 95.00
- 43 : 98.90

3. Last Saturday, Daphne sold 48 one-cup servings of lemonade at her lemonade stand. This week, she hopes to sell three times the amount she sold last week. If Daphne hits her goal, how many gallons of lemonade will she sell this week? (**Hint: 1 cup = 8 oz and 1 gallon = 128 oz**)

- 1.18
- 2.9
- 3.3
- 4.4

4. Use the number line below to answer the following question.



A new point is drawn on the number line that is 82% of the distance from point  $B$  to point  $G$ . Between which two points is the new point drawn?

- $C$  and  $D$
- $D$  and  $E$
- $E$  and  $F$
- $F$  and  $G$

5.

Molly purchased a 4.25 pound bag of sugar at the grocery store last week to bake cookies. If each batch of cookies requires one cup of sugar, how many full batches of cookies can she make before she needs to buy more sugar?

**1 pound = 2 cups**

1. 9 full batches    2. 8 full batches

3. 4 full batches    4. 2 full batches

6. The cross country running team is hosting their first home race and needs to plan and set up the course. The only tool available to record the distance measures in feet. If the course must be at least 3 miles but no more than 3.2 miles in length, what is the smallest and the largest number of feet they must walk in order to fulfill the requirements?

1 mile = 5,280 feet.

Smallest:

Largest:

7. A 6-ounce tube of toothpaste costs \$2.00. What is the approximate difference in the unit price from the original price if a \$1.25 off coupon is used?

1. \$0.33    2. \$0.21

3. \$0.20    4. \$0.13

8. The area of a triangle is  $\frac{7}{10}$  square meters. If the height of the triangle is  $\frac{5}{2}$  meters, what is the length, in meters, of the triangle?

1.  $\frac{14}{25}$

2.  $\frac{7}{8}$

3.  $\frac{28}{25}$

4.  $\frac{7}{2}$

9. Li Na has  $\frac{5}{6}$  pound of brownies. She places the brownies into containers that hold  $\frac{1}{10}$  pound each until she runs out of brownies. How many full containers of brownies are there?

1. 6    2. 7

3. 8    4. 9

10. There is  $\frac{5}{6}$  of pound of coffee grounds remaining in a can. A cup of coffee requires  $\frac{1}{60}$  of a pound (1 tablespoon) of coffee grounds. How many cups of coffee can Josh make from the coffee grounds remaining in the can?

Josh can make

more cups of coffee.

11. There is  $1\frac{3}{4}$  pints of yogurt remaining in the refrigerator. If Jill brings  $\frac{3}{8}$  of a pint of yogurt in her lunch each day, how many  $\frac{3}{8}$  pint servings of yogurt can she pack in her lunch? Express your answer as a mixed number.

Jill can take   servings of yogurt in her lunch.

12. There are 420 candy bars in a case. In 1990, the cost of a candy bar was \$0.75. In 2010, the cost rose to \$1.15. How much more did a case of candy bars cost in 2010 than in 1990?
1. \$166    2. \$167  
3. \$168    4. \$169

**Figure 1**

Claire and Norah had lunch out on the town on Saturday afternoon. Claire ordered a slice of pizza that cost \$2.25, a salad that cost \$3, and lemonade that cost \$1. Norah ordered a burger that cost \$3.50, fries that cost \$2.75, and a milkshake that cost \$2.50.

13. **[Refer to figure 1]**

How many times greater was the amount Norah spent than the amount Claire spent?

Norah spent

times more money than Claire.

14. **[Refer to figure 1]**

How much money did Claire and Norah spend altogether?

Claire and Norah spent \$

**Figure 2**

Jason works during the summer as a cashier at the mall. He makes \$8.75 per hour. The table below shows the number of hours he worked each week during the month of July.

Week	Hours Worked
1	15.5
2	19
3	16.25
4	18.75

15. **[Refer to figure 2]**

How much money did Jason earn during the month of July? Round to the nearest cent.

Answer: \$

16. Brent mows his yard in 1.48 hours. It takes his neighbor Curtis 0.7 times the amount of time it takes Brent. How long does it take Curtis to mow his yard?

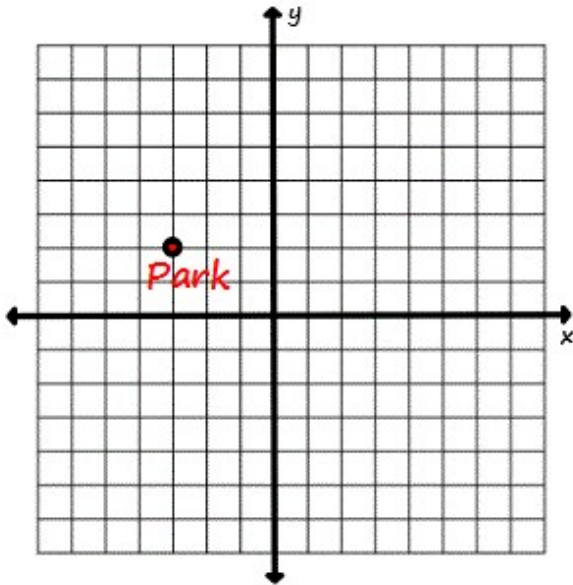
1. 1.56 hours    2. 1.41 hours  
3. 1.036 hours    4. 2.11 hours

17. On a treasure map, the last clue is that the treasure is buried a certain number of feet away from a tree. The distance is equal to the least common multiple of 8 and 20. How many feet is the treasure from the tree?

Answer:

feet

18. Use the graph below to answer the question below.



The point marked on the coordinate plane above marks the location of the town park. If Lindsey's house is located at the point  $(-3\frac{1}{2}, 7)$

, 7) what is true about Lindsey's house in relation to the town park?

1. Lindsey's house is to the right of the town park because  $-3\frac{1}{2}$  is a larger number than  $-3$ .
2. Lindsey's house is to the right of the town park because  $-3\frac{1}{2}$  is a smaller number than  $-3$ .
3. Lindsey's house is to the left of the town park because  $-3\frac{1}{2}$  is a larger number than  $-3$ .
4. Lindsey's house is to the left of the town park because  $-3\frac{1}{2}$  is a smaller number than  $-3$ .

19. Point G is located at  $-18$  on a number line. Point H is 24 more than point G. Which statement about point H is true?

1. It is located at  $-42$  and is to the left of point G on the number line.
2. It is located at  $-42$  and is to the right of point G on the number line.
3. It is located at 6 and is to the left of point G on the number line.
4. It is located at 6 and is to the right of point G on the number line.

20. Which statement below is true?

1. The absolute value of 3 is larger than the absolute value of  $-3.75$
2. The absolute value of 3 is smaller than the absolute value of  $-3.75$
3. The absolute value of 3 is equal to the absolute value of  $-3.75$
4. The absolute value of 3 and  $-3.75$  cannot be determined.

21. The map of an amusement park is placed on the coordinate plane. When this is done, the roller coaster is located at the point  $(-9, 8)$  and the Ferris wheel is located at the point  $(2, 8)$ .

What is the horizontal distance between the roller coaster and the Ferris wheel?

Answer:

units

22. When plotted on the coordinate plane, two boat docks are located 9 vertical units from each other. Based on this condition, are the two ordered pairs possible coordinates of the boat docks?

Select **Yes** or **No** for options A – D.

A.  $(5, -3)$  and  $(5, 6)$        Yes    No

B.  $(-8, 4)$  and  $(-8, -5)$        Yes    No

C.  $(-3, -1)$  and  $(-3, 10)$        Yes    No

D.  $(-2, 11)$  and  $(-2, 2)$        Yes    No

23. What is the largest whole number that is less than  $\left(\frac{4}{7}\right)^3 \div \left(\frac{2}{5}\right)^4$ ?

Answer: The largest whole number less than  $\left(\frac{4}{7}\right)^3 \div \left(\frac{2}{5}\right)^4$

is .

24. Which expression has the greatest value?

1.  $\left(\frac{1}{3}\right)^2$

2.  $\left(\frac{1}{4}\right)^2$

3.  $\left(\frac{1}{3}\right)^3$

4.  $\left(\frac{1}{4}\right)^3$

25. Macie just bought a new fish tank. The fish tank is a cube with a side length of 1.75 feet. She is going to fill the fish tank using a small plastic container she found in her kitchen cupboard by filling it at the sink, walking it to the tank, emptying it and repeating the process until the tank is full. If the small plastic container is a cube with the side length of 8 inches, how many trips does she need to make to completely fill the fish tank?

1. 18 trips      2. 19 trips

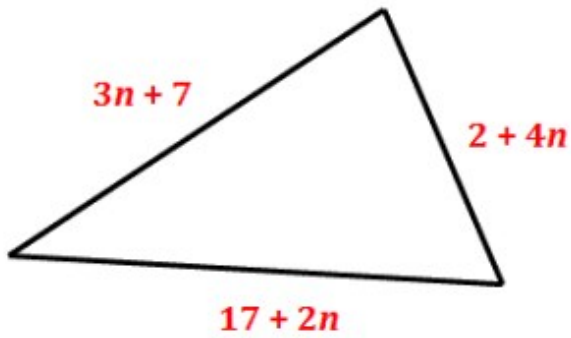
3. 95 trips      4. 96 trips

26. Veronica cut a square from a piece of paper with a side length of 1.2 inches. She then decided to make the square smaller and decreased the side length to  $\frac{3}{5}$  of an inch. How much smaller is the area of the new square than the original?
1. 0.36 square inches    2. 1.08 square inches  
3. 1.44 square inches    4. 4.00 square inches

27. The length of a rectangle is 5 units more than the width,  $w$ . Which expression represents the area of the rectangle?

1.  $w^2 + 25$   
2.  $5w + 25$   
3.  $w^2 + 5w$   
4.  $4w^2 + 5w$

28. Which expression represents the perimeter of the triangle?



1.  $22n + 13$     2.  $20n + 26$   
3.  $16n + 13$     4.  $9n + 26$

29. Create an equivalent expression using the GCF.

$$56m + 24n = \boxed{\phantom{0000}}$$

$$(\boxed{\phantom{0000}}m + \boxed{\phantom{0000}}n)$$

30. Drag and drop expressions from the box so that each is next to its equivalent expression.

$$4x + 7y$$

$$2(2x + 3y)$$

$$48x + 16y$$

$$4x + 7xy$$

$$x(10 + 3y)$$

$$4(x + 6y)$$

$$x(10y + 3)$$

$$14x + 10y$$

A.	$4x + 6y =$	
B.	$8(6x + 2y) =$	
C.	$x(4 + 7y) =$	
D.	$10xy + 3x =$	

31. Which expression is equivalent to  $7(p + 2n) + n$ ?

1.  $7p + 2n$
2.  $7 + p + 3n$
3.  $7p + 10n$
4.  $7p + 15n$

32. Jefferson cleans office cubicles to earn extra money.

- He charges \$2.50 for cleaning one cubicle.
- He charges \$3.25 for each additional cubicle cleaned.
- Let  $c$  represent the number of cubicles cleaned after the first cubicle.

Which expression represents the amount of money earned for cleaning office cubicles?

1.  $3.25c + 2.50$
2.  $5.75c$
3.  $2.50c + 3.25$
4.  $0.75c + 1.75$

33. Jon's cell phone plan includes a flat fee of 19.99 which covers all minutes spent on the phone. Any text messages sent or received cost 10 cents per message. He writes the expression  $0.10x + 19.99$  to represent his monthly bill. What does the variable  $x$  represent?

1. Number of Months
2. Total Cost
3. Number of Text Messages
4. Number of Minutes

34. Josué earned \$56.25 fixing a coding issue with a popular website. It took him a total of 4.5 hours to fix the issue. The equation  $4.5x = 56.25$  can be used to find Josué's hourly rate. What is Josué's hourly rate?

1. \$11.25
2. \$12.50
3. \$13.75
4. \$15.00

35. On his first day of sales, Patrick earned \$26.50 selling lemonade. At the end of Day 2, he had a total of \$57.25. If  $x$  represents the amount of money he made on Day 2, which equation correctly represents this situation?

1.  $x + 26.50$
2.  $x + 26.50 = 57.25$
3.  $x - 57.25 = 30.75$
4.  $x + 57.25 = 26.50$



36. Look at each equation or inequality. Does it represent the inequality  $x \geq 3$ ? Select Yes or No for choices A – D.

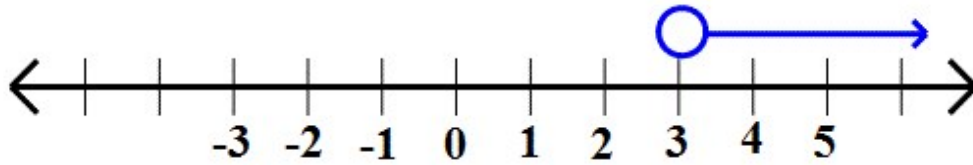
A.  $x$  is greater than or equal to 3

Yes No

B.  $x$  is at least 3

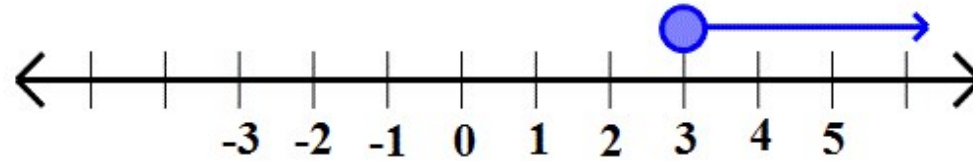
Yes No

C.



Yes No

D.



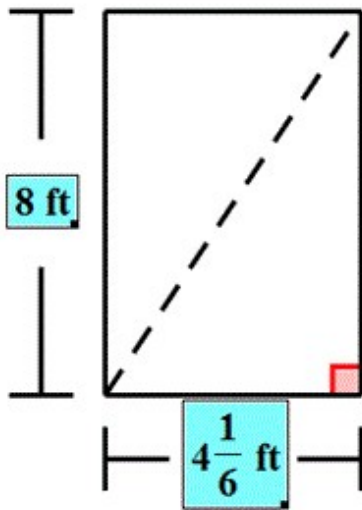
Yes No

37. Crab Cake, Inc. sells crab cakes for \$6 each. Jackson says the total cost  $y$  depends on the number of crab cakes  $x$  purchased. Which ordered pair would prove Jackson's relationship correct and be located on the graph of the relationship?

1. (3, 9)    2. (4, 16)

3. (6, 30)    4. (8, 48)

38. A rectangular beach blanket is divided into two congruent triangles and is shown below.



What is the area of one of the triangles?

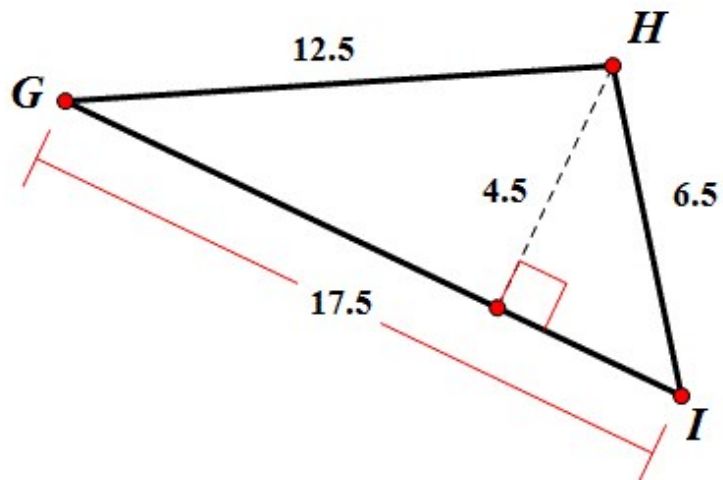
1.  $33\frac{1}{3}$  square feet

2.  $27\frac{1}{3}$  square feet

3.  $16\frac{2}{3}$  square feet

4.  $10\frac{2}{3}$  square feet

39. Which student calculated the area of  $\triangle GHI$  correctly?



1. Eric:

$$A = \frac{1}{2}(12.5)(4.5)$$

$$A = 28.125 \text{ units}^2$$

2. Silas:

$$A = \frac{1}{2}(12.5)(17.5)$$

$$A = 109.375 \text{ units}^2$$

3. Ace:

$$A = \frac{1}{2}(12.5)(6.5)$$

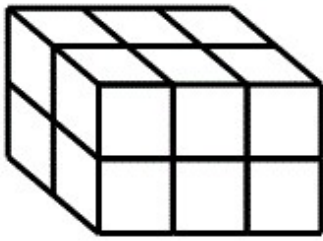
$$A = 40.625 \text{ units}^2$$

4. Chase:

$$A = \frac{1}{2}(17.5)(4.5)$$

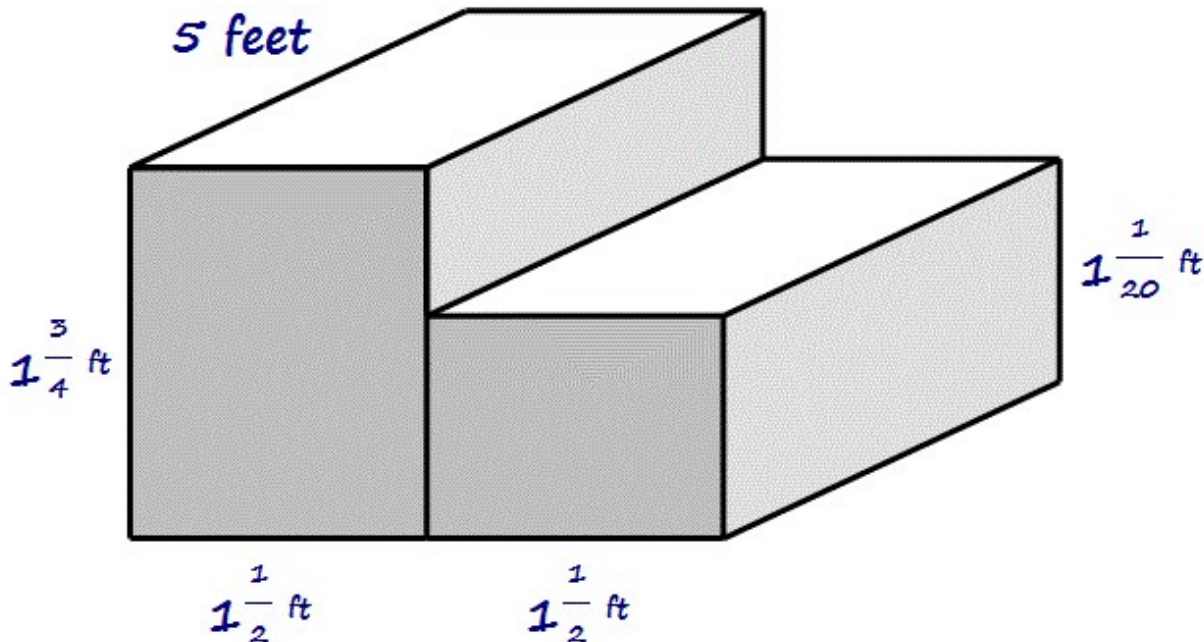
$$A = 39.375 \text{ units}^2$$

40. The edge length of each cube is  $\frac{1}{4}$  meter.



What is the volume of the right rectangular prism?

1.  $\frac{3}{16}$  cubic meter
  2.  $\frac{3}{4}$  cubic meter
  3. 3 cubic meters
  4.  $\frac{3}{2}$  cubic meters
41. A front stoop is being installed. It contains two steps that will be made using concrete. How much concrete will be needed to create the stoop?



1. 756 in<sup>3</sup>
  2. 3,024 in<sup>3</sup>
  3. 9,072 in<sup>3</sup>
  4. 36,288 in<sup>3</sup>
42. What is the area of a quadrilateral with vertices  $(-1, 5)$ ,  $(2, 5)$ ,  $(5, -1)$ , and  $(-4, -1)$ ?
1. 20 units<sup>2</sup>
  2. 29 units<sup>2</sup>
  3. 32 units<sup>2</sup>
  4. 36 units<sup>2</sup>

43. Using the vertices of the polygons listed below, drag and drop the letter of the polygon in order of largest perimeter to smallest perimeter.

- **Polygon A** with vertices  $P(-2, 4)$ ,  $Q(1, 4)$ ,  $R(1, -5)$ ,  $S(-2, -5)$
- **Polygon B** with vertices  $D(-3, 3)$ ,  $E(2, 3)$ ,  $F(2, 1)$ ,  $G(0, 1)$ ,  $H(0, -1)$ ,  $I(-3, -1)$
- **Polygon C** with vertices  $J(-2, 5)$ ,  $K(3, 5)$ ,  $L(3, 3)$ ,  $M(2, 3)$ ,  $N(2, -1)$ ,  $O(0, -1)$ ,  $P(0, 3)$ ,  $Q(-2, 3)$

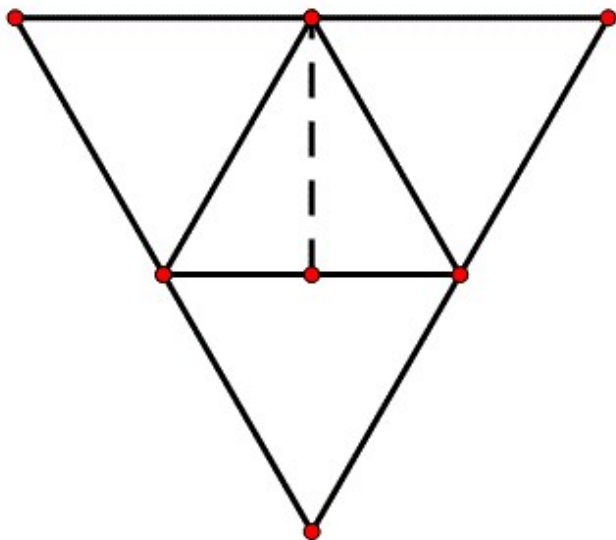
A

B

C

Largest Perimeter		Smallest Perimeter

44. The net below of a pyramid consists of four equilateral triangles all with a side length of 10 units. The height of each of the triangles is 8.7 units.

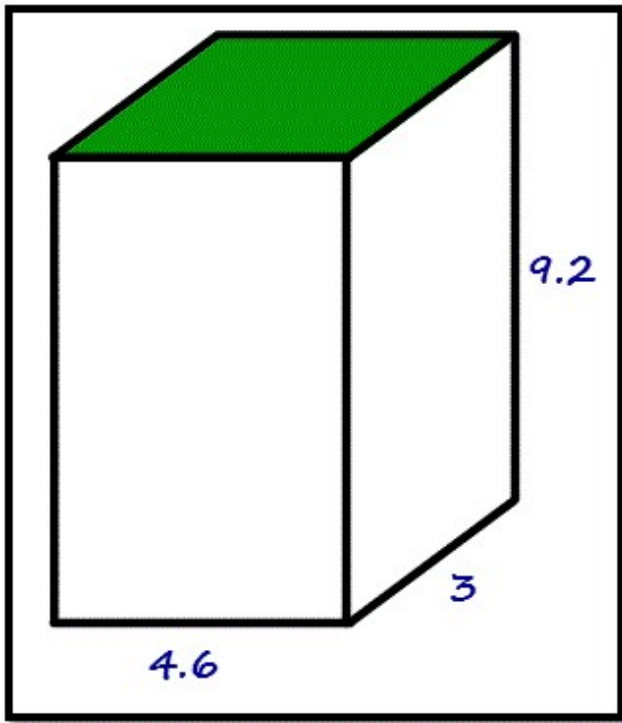


What is the surface area of the net?

Answer: The surface area of the net is

units<sup>2</sup>.

45. Which student's work and answer are correct in calculating the surface area of the prism below?



1. Darcy

$$\begin{aligned}SA &= lw + lh + wh \\ &= (4.6)(3) + (9.2)(4.6) + (3)(9.2) \\ &= 13.8 + 42.32 + 27.6 \\ &= 83.72 \text{ units}^2\end{aligned}$$

2. Kareem

$$\begin{aligned}SA &= lwh \\ &= (4.6)(3)(9.2) \\ &= 126.96 \text{ units}^3\end{aligned}$$

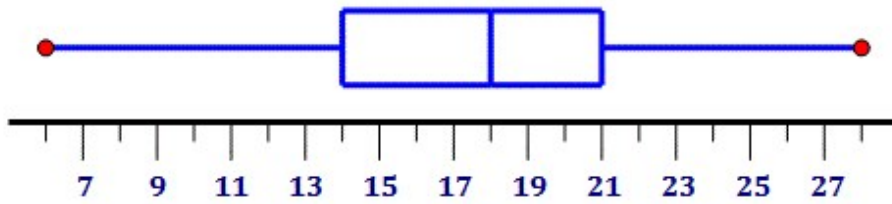
3. Jacques

$$\begin{aligned}SA &= 2lw + 4lh \\ &= 2(4.6)(3) + 4(9.2)(4.6) \\ &= 27.6 + 169.28 \\ &= 196.88 \text{ units}^2\end{aligned}$$

4. Natalia

$$\begin{aligned}SA &= 2(lw + lh + wh) \\ &= 2[(4.6)(3) + (9.2)(4.6) + (3)(9.2)] \\ &= 2(13.8 + 42.32 + 27.6) \\ &= 2(83.72) \\ &= 167.44 \text{ units}^2\end{aligned}$$

46. Given the box-and-whisker plot below:

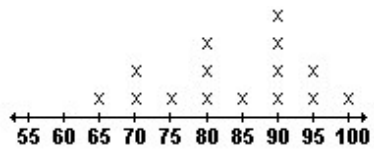


Which set of data could represent the box-and-whisker plot?

1. 6, 13, 15, 16, 18, 18, 20, 21, 27, 28
2. 6, 7, 14, 16, 16, 19, 21, 21, 25, 28
3. 6, 12, 14, 16, 17, 19, 20, 21, 21, 28
4. 6, 9, 13, 15, 16, 20, 20, 21, 27, 28

**Figure 3**

The line plot shows Amy's scores on all of the quizzes she took this year.



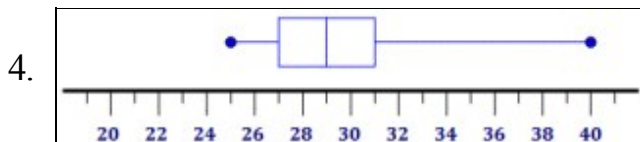
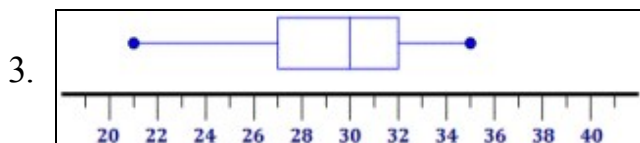
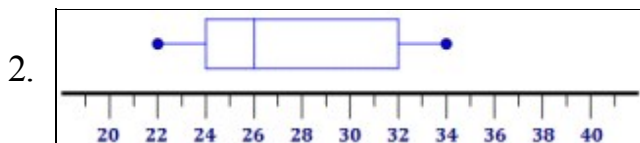
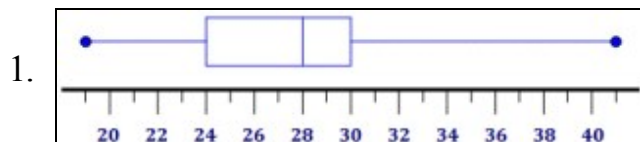
47. **[Refer to figure 3]**

How many times did Amy receive an 80 or lower?

Answer:

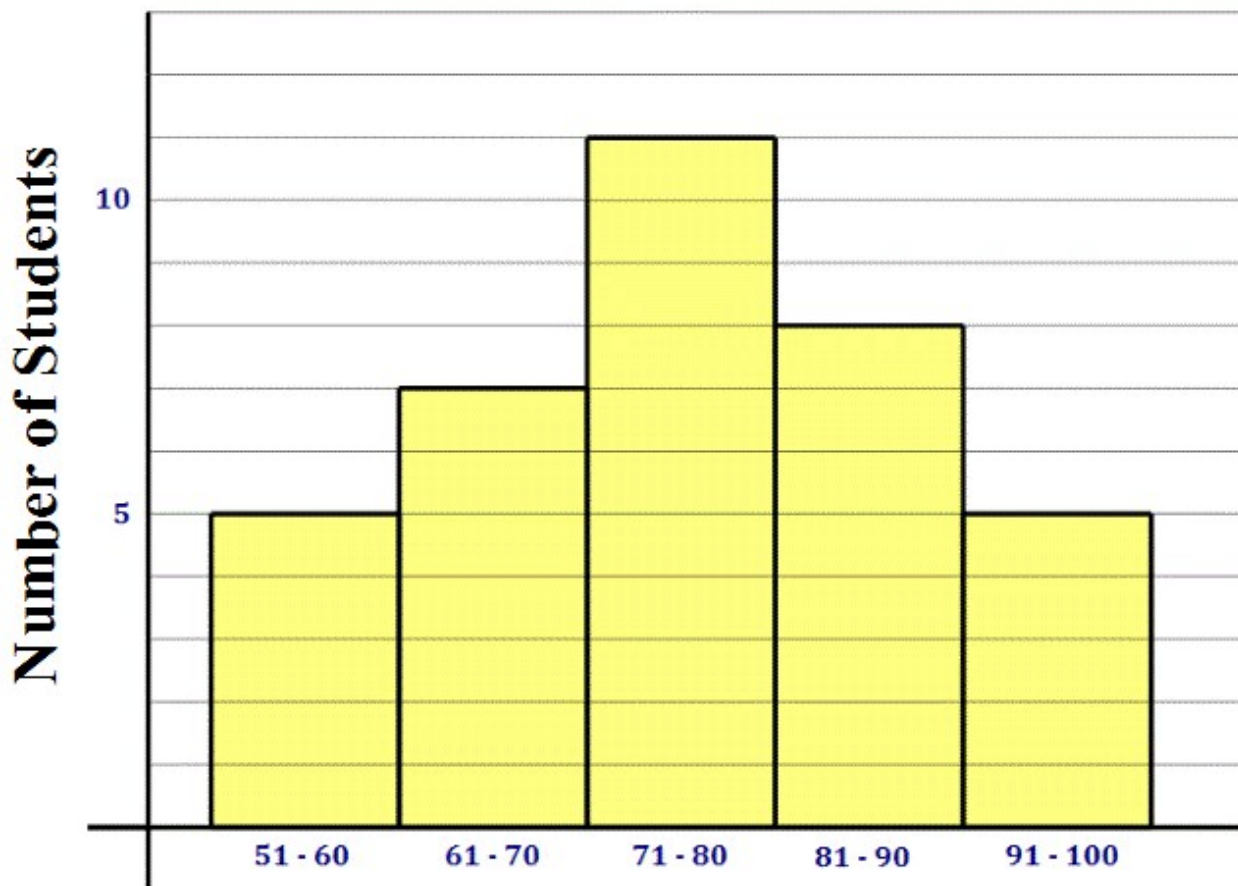
times

48. Which box plot represents a set of data with the largest interquartile range?



49. Thirty-six students took a Math test. The graph of the results is shown below.

# Test Scores

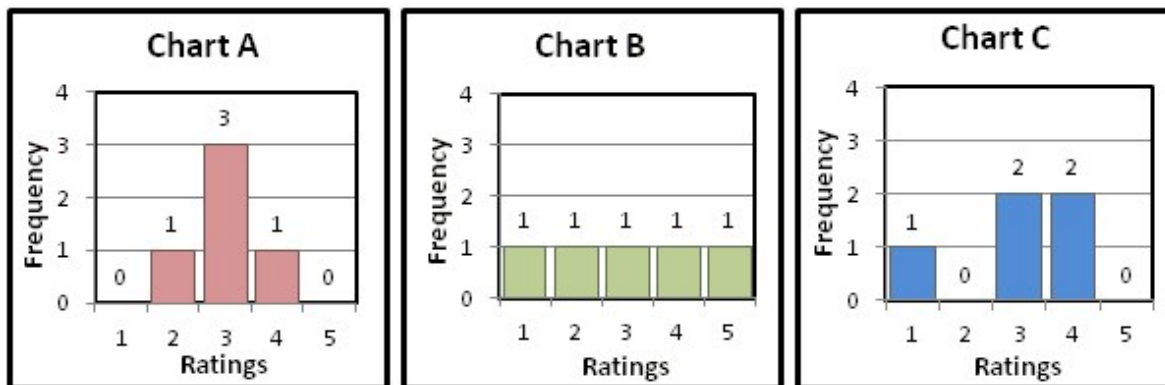


In which interval is the median?

1. 51 – 60
2. 61 – 70
3. 71 – 80
4. 81 – 90

Figure 4

The three charts below represent the ratings from a survey about performance:



50. [Refer to figure 4]

Find the mean absolute deviation of the data in Chart C.

1. 0.8    2. 1.2
3. 1.6    4. 2.2

