

Name _____ Date _____

Give the best answer for each question.

1. Dave is making pans of lasagna for a banquet. For each pan, he needs $\frac{5}{6}$ pound of cheese.

If Dave has $5\frac{5}{8}$ pounds of cheese, how many complete pans of lasagna can he make?

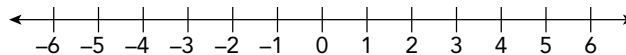
Dave can make _____ complete pans of lasagna.

2. Evaluate the expression at the given values.

$$f = 5\frac{2}{3}, g = \frac{3}{4}$$

$$f - 2\frac{1}{3} + g = \underline{\hspace{2cm}}$$

3. Put the numbers in order from least to greatest. Use the number line to help.



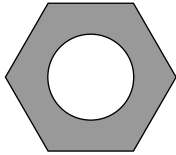
$$-\frac{6}{2}, -0.5, -2\frac{1}{4}$$

4. Point A is located at $(-3, 6.5)$.
Point B is located at $(-3, -6.5)$.

Which statement correctly compares the two points?

- Point A is a reflection of point B over the x-axis.
- Point A is a reflection of point B over the y-axis.
- Point A is a reflection of point B over the x-axis and the y-axis.
- Point A is not a reflection of point B over either axis or both axes.

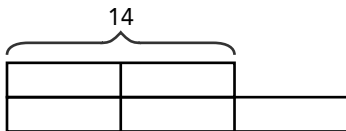
5. Allison has a metal nut in the shape of a regular hexagon with a hole cut out of the center, as shown. The hexagon has side lengths of 5 millimeters and measures 8.66 millimeters from side to side. The circular hole in the center has a diameter of 5 millimeters.



What is the area of this face of the metal nut? Round to the nearest hundredth. (Use $\pi \approx 3.14$.)

_____ square millimeters

6. Emilio has a photo that is 2 inches wide and 3 inches long. He enlarges it so that it is 14 inches wide and has the same ratio of width to length. How long is the enlarged photo?



- 9 in.
 12 in.
 18 in.
 21 in.

7. Use the tables to compare. Which ratio is greater?

4 : 9		
4	8	12
9	18	27

1 : 3		
1	2	3
3	6	9

- 4 : 9
 1 : 3

8. A bakery has 12 pounds of flour. A loaf of bread uses 300 grams of flour. How many whole loaves of bread can the bakery make?

$$1 \text{ lb} = 16 \text{ oz}$$

$$1 \text{ oz} \approx 28.35 \text{ g}$$

_____ loaves of bread

9. The area of a parallelogram is 35 square inches, and the height is 7 inches. Find the length of the base.

_____ in.

10. A triangle and a trapezoid have the same area. The trapezoid has a height of 9.2 centimeters and base lengths of 4.4 and 7.5 centimeters. The triangle has a base length of 10.9 centimeters.

Find the area of both shapes, and the height of the triangle. Round your answers to the nearest hundredth.

Area of both shapes: _____ cm^2

Triangle height: _____ cm

11. Match each decimal or fraction in the left column with its equivalent percent in the right column.

0.0038

0.9%

$\frac{9}{4,000}$

$\frac{4}{5}\%$

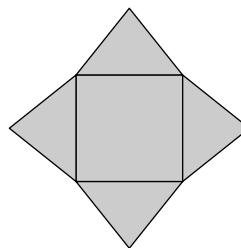
0.009

0.225%

$\frac{1}{125}$

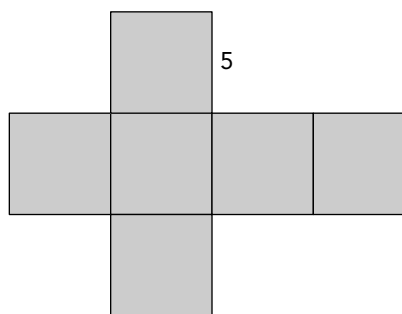
0.38%

12. A pyramid has a square base with side lengths of 8 millimeters and triangular faces with heights of 5 millimeters. What is the pyramid's surface area?



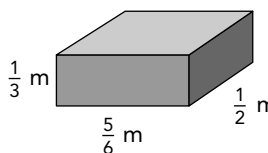
- 64 mm^2 80 mm^2
 144 mm^2 224 mm^2

13. Find the surface area of the cube.



_____ square units

14. Find the volume of the rectangular prism.



Volume = _____ m^3

15. Which equations are true? Select **all** that apply.

Note: Assume that no variables equal 0.

$\frac{m}{n} \cdot \frac{m}{n} = 1$

$\frac{12}{25} (1) = 1 \frac{12}{25}$

$\frac{7}{8} \left(\frac{1}{4} - \frac{1}{3} \right) = \frac{7}{8} \cdot \frac{1}{4} - \frac{7}{8} \cdot \frac{1}{3}$

$b \cdot \frac{9}{10} = \frac{9}{10} \cdot b$

$\left(\frac{2}{3} \cdot \frac{4}{5} \right) \frac{3}{5} = \frac{2}{3} \left(\frac{4}{5} \cdot \frac{3}{5} \right)$

$\left(\frac{5}{6} \cdot \frac{3}{5} \right) + \frac{7}{10} = \frac{5}{6} \left(\frac{3}{5} + \frac{7}{10} \right)$

16. Jackson sells his skateboard for two thirds of the price he paid for it.

Part A

What expression represents Jackson’s selling price for his skateboard? Let p represent the price he paid for it.

Part B

If Jackson paid \$72.75 for his skateboard, what is his selling price?

\$ _____

17. **Part A**

The cost of 5 plants is \$6. Each plant costs the same amount. How much does 1 plant cost?

\$ _____

Part B

Which of these prices offer a better deal than 5 plants for \$6?

Select **all** that apply.

2 plants for \$3

4 plants for \$5

6 plants for \$7

8 plants for \$10

10 plants for \$11

18. A dock is $3\frac{1}{2}$ feet above the surface of a lake. A fish is swimming 3.75 feet below the surface of the lake.

Part A

Plot points on the number line to show the positions of the dock and the fish relative to the lake's surface.

**Part B**

What is closer to the surface of the lake: the dock or the fish?

The _____ is closer.

Part C

Justify your answer to Part B.

19. Pattie has three rectangular vegetable gardens. Each garden has a length of 14 feet and a width of 12 feet. Pattie wants to know how much fencing she needs for all three gardens.

Part A

The total of the gardens' perimeters is represented by the formula shown.

$$P = (2\ell + 2w) + (2\ell + 2w) + (2\ell + 2w)$$

Rewrite the formula by using properties of operations to combine like terms.

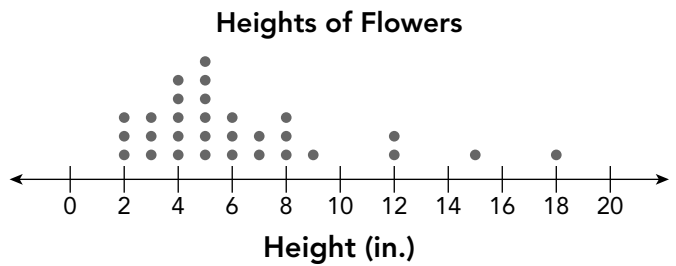
$$P = \underline{\hspace{2cm}}$$

Part B

How many feet of fencing does Pattie need in all?

_____ feet

20. The dot plot shows the heights in inches of 30 flowers Thomas picked from his garden.



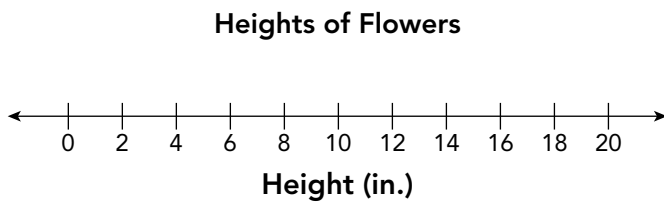
Part A

What is the mean height of the 30 flowers?
Round your answer to the nearest tenth of an inch.

_____ inches

Part B

Make a box plot to summarize the data in the dot plot.



21. There are 154 residents in Nestorville who own vans, representing about 3.6% of the town's population.

Part A

To the nearest whole, what is the population of Nestorville?

_____ residents

Part B

Out of the residents who own vans, about 37% own white vans. To the nearest whole, how many residents own white vans?

_____ residents

Part C

Raul and Daniel are the only two residents who own red vans. To the nearest tenth of a percent, what percent of the van-owning residents do Raul and Daniel represent?

_____%

22. Matthias cuts a piece of paper so that it is $8\frac{1}{2}$ inches long and x inches wide. Its area is $45\frac{11}{16}$ square inches.

Part A

What is an equation that represents this situation? _____

Part B

How wide is the piece of paper? _____ in.

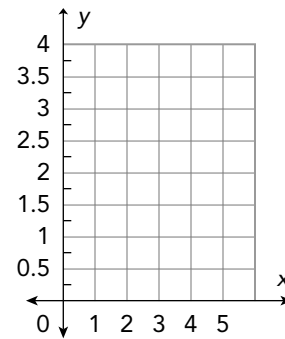
23. Each can of beans costs \$0.75. Let b equal the number of cans of beans and c equal the total cost.

Part A

Represent the relationship with an equation.

Part B

Represent the relationship in a graph.



24. Clifton's daily high temperatures for the past two weeks in degrees Fahrenheit, are:

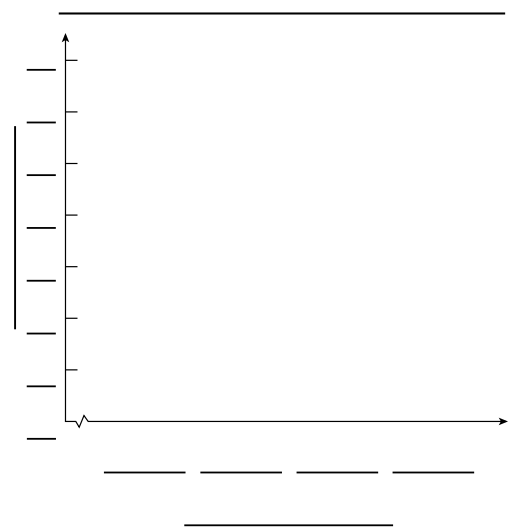
75, 72, 66, 65, 68, 70, 70,
62, 69, 68, 77, 71, 70, 72

Part A

Make a histogram of the data.

Part B

Can you use the histogram to find the mean, median, or mode of the data? Explain.



25. Part A

Koa counts 350 hatchling turtles among n nests. Each nest has the same number of hatchlings. Which expression could be used to find the number of hatchlings per nest?

- $350n$ $350 - n$ $\frac{n}{350}$ $350 \div n$

Part B

There are actually 2 more nests than Koa thought. Either way, the number of hatchlings per nest is a whole number if there are 350 hatchlings in all.

How many nests did Koa think there are?

_____ nests

What is the actual number of nests?

_____ nests

Explain how you know.

- 26.** Henry has \$2 more than Ray. If Ray has x dollars, then Henry has y dollars.

Part A

Write an equation for this situation.

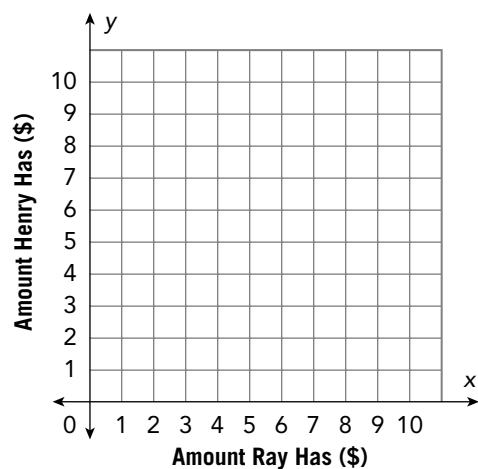
Part B

Graph the equation.

Part C

If Ray has \$10, how much money does Henry have?

Henry has \$_____.



27. James is building a fence.

He puts posts at $(3, 1)$, $(3, -5)$, $(-2, 1)$, and $(-2, -5)$.

Part A

Plot the points.

Part B

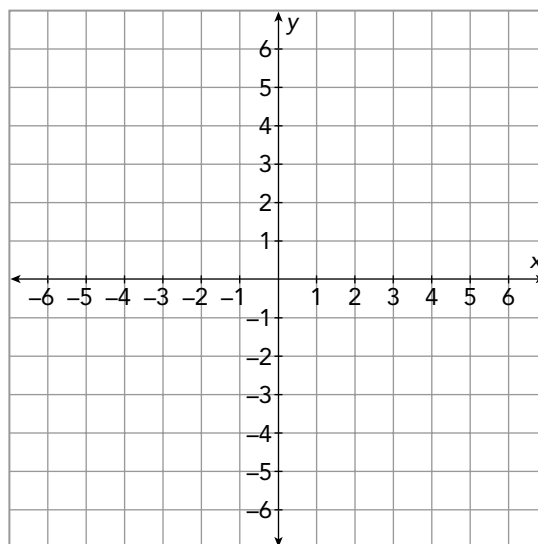
Assume each unit on the grid represents 3 meters. What is the length (the longer side) of the fence? What is the width?

Length: _____ m

Width: _____ m

Part C

James says that if he plots a fifth post anywhere, his fence will be pentagonal. Is he correct? Justify your response.



28. Jenna lives 3 miles from school, which is 4 miles closer than her friend Maria lives.

Part A

If m represents the number of miles Maria lives from school, complete the equation.

$3 = \underline{\hspace{2cm}}$

Part B

Solve for m .

$m = \underline{\hspace{2cm}}$

29. The table shows results from a men’s swim race.

Top 50-m Freestyle Times (s)
21.40
21.41
21.49
21.68
21.74
21.79
21.79
22.08

Part A

What is the mean time among the 8 swimmers?
Round to the nearest hundredth.

_____ s

Part B

What is the median time among these swimmers?

_____ s

Part C

What is the interquartile range (IQR) of the times of the swimmers?

- 0.06 s 0.34 s 0.38 s 0.68 s

30. Charles spends the same amount each day for lunch, 5 days per week. He spends a total of \$39.75 on lunch during those 5 days.

Part A

What is an equation that represents this situation? Let x equal the amount of money Charles spends on lunch each day.

Part B

How much does Charles spend on lunch each day?

\$_____

Part C

Charles has \$200 budgeted for lunches. What inequality describes how many full weeks, w , he can buy lunch until he runs out of money? Assume he spends \$39.75 each week.

Part D

Graph the solution to the inequality from Part C.

