

# IAR Math Practice

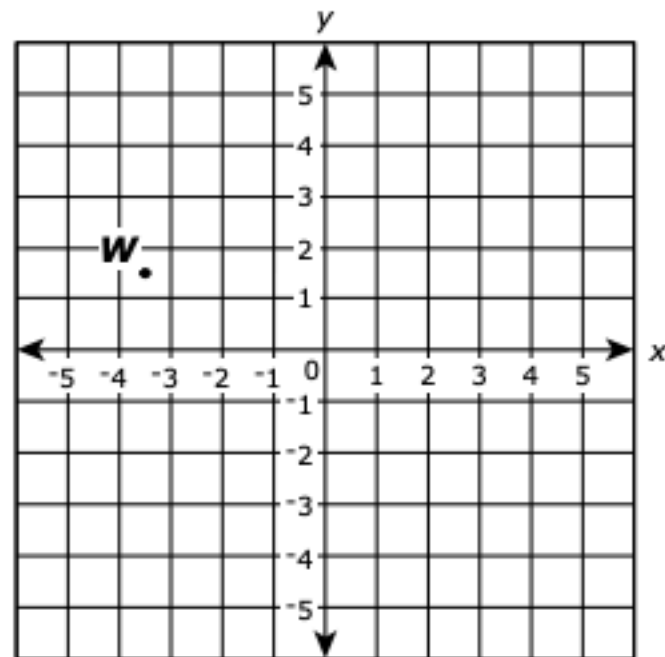
TEST QUESTIONS

## Mathematics

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1. A class of 25 students shares a class set of 100 markers. On a day with 5 students absent, which statement is true?
  - A. For every 5 students, there is 1 marker.
  - B. For every 4 students, there is 1 marker.
  - C. For each student, there are 4 markers.
  - D. For each student, there are 5 markers.
  
2. The area of a rectangular patio is  $5\frac{5}{8}$  square yards, and its length is  $1\frac{1}{2}$  yards. What is the patio's width, in yards?
  - A.  $3\frac{3}{4}$
  - B.  $4\frac{1}{8}$
  - C.  $7\frac{1}{8}$
  - D.  $8\frac{7}{16}$

3. This coordinate plane shows the location of point  $W$ .



What is the value of the  $x$ -coordinate of point  $W$ ? Enter your answer as a decimal to the nearest 0.5.

Enter your answer in the box.

4. Enter your answer in the box.

$$33.8 \div 32.5 =$$

5. Which equations with exponential expressions are true?

Select **all** that apply.

A.  $3^3 = 3 \cdot 3$

B.  $5^2 = 5 \cdot 5$

C.  $5^4 = 4 \cdot 4 \cdot 4 \cdot 4$

D.  $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 = 6^7$

E.  $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 = 7^6$

F.  $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 = 7^7$

6. Enter your answer in the box.

$34,992 \div 81 =$

7. These five rational numbers are plotted on a horizontal number line.

$$-\frac{2}{3}, \frac{7}{8}, -\frac{4}{5}, \frac{7}{10}, -\frac{4}{3}$$

Which statement about the locations on the number line of the rational numbers is true?

A.  $-\frac{2}{3}$  is farthest to the left, and  $\frac{7}{8}$  is farthest to the right.

B.  $-\frac{4}{3}$  is farthest to the left, and  $\frac{7}{8}$  is farthest to the right.

C.  $-\frac{2}{3}$  is farthest to the left, and  $\frac{7}{10}$  is farthest to the right.

D.  $-\frac{4}{3}$  is farthest to the left, and  $\frac{7}{10}$  is farthest to the right.

8. What is the greatest common factor of 16 and 48?

Enter your answer in the box.

9. Select each expression that is equivalent to  $3(n + 6)$ .

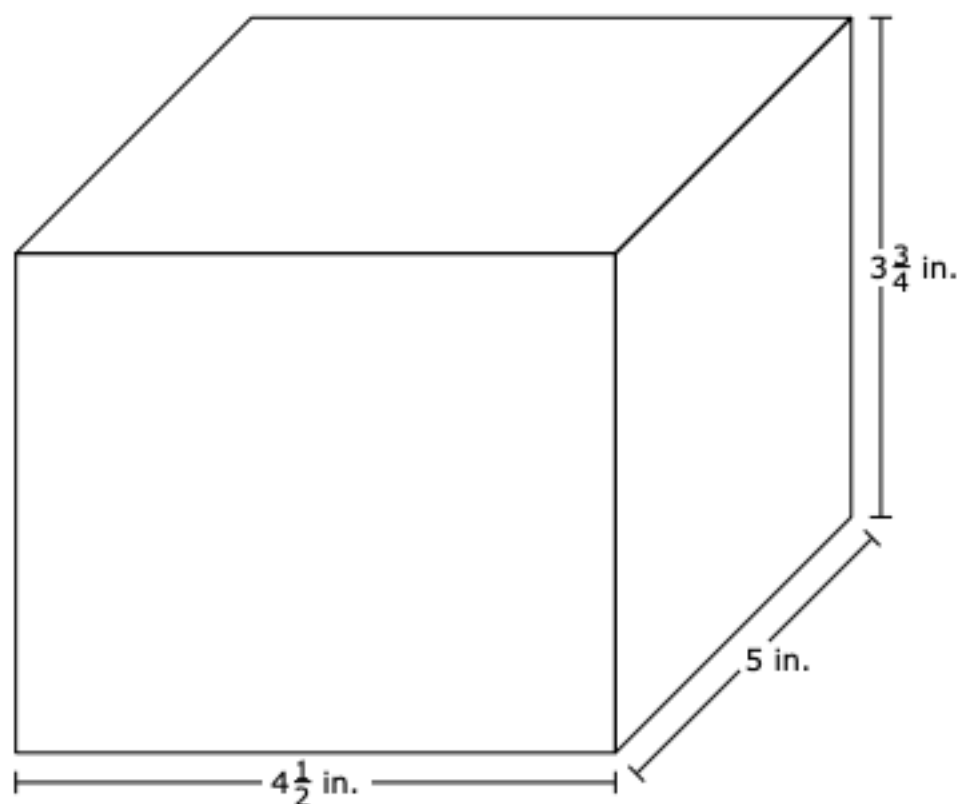
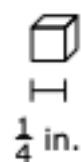
Select **all** that apply.

- A.  $3n + 6$
- B.  $3n + 18$
- C.  $2n + 2 + n + 4$
- D.  $2(n + 6) + (n + 6)$
- E.  $2(n + 6) + n$

**Mathematics**

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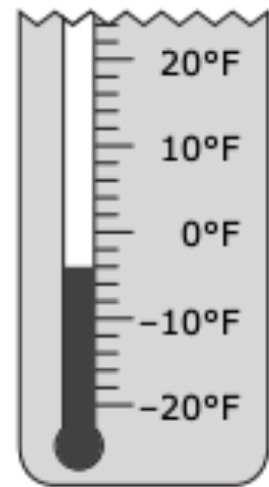
- 10.** Small cubes with edge lengths of  $\frac{1}{4}$  inch will be packed into the right rectangular prism shown.



How many small cubes are needed to completely fill the right rectangular prism?

Enter your answer in the box.

11. The picture shows part of a thermometer measuring temperature in degrees Fahrenheit.



What is the temperature, in degrees Fahrenheit, shown on the thermometer to the nearest integer?

Enter your integer answer in the box.

12. Marshall took \$36.75 to a fair. Each ticket into the fair costs  $x$  dollars. Marshall bought 3 tickets. Which expression represents the amount of money, in dollars, that Marshall had after he bought the tickets?
- A.  $36.75 - (3 + x)$
- B.  $36.75x - 3$
- C.  $36.75(3) - x$
- D.  $36.75 - 3x$

**13.** Which question is a statistical question?

- A.** How tall is the oak tree?
- B.** How much did the tree grow in one year?
- C.** What are the heights of the oak trees in the schoolyard?
- D.** What is the difference in height between the oak tree and the pine tree?

**14.** The median number of points scored by 9 players in a basketball game is 12. The range of the numbers of points scored by the same basketball players in the same game is 7.

Which statement is true based on the given information?

- A.** At least one player scored 12 points.
- B.** The greatest number of points scored is less than 19 points.
- C.** The mean number of points scored is greater than 12 points.
- D.** If the greatest number of points scored is 16, then the least number of points scored is 4.

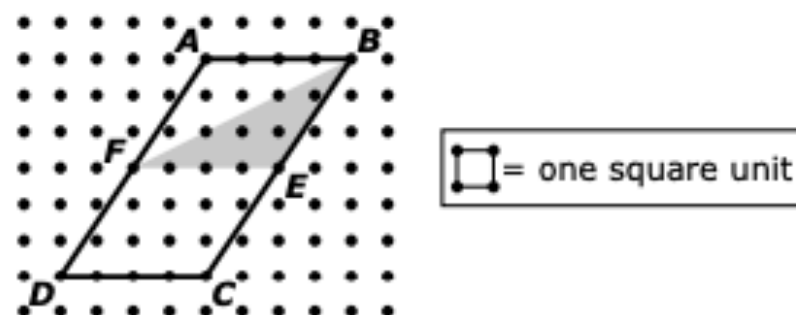


15. Which expression represents "6 more than  $x$ "?

- A.  $x - 6$
- B.  $6 \cdot x$
- C.  $x + 6$
- D.  $6 - x$

Use the information provided to answer Part A and Part B for question 16.

An advertising company is designing a new logo that consists of a shaded triangle inside a parallelogram.



16. Part A

What is the area, in square units, of parallelogram  $ABCD$ ?

Enter your answer in the box.

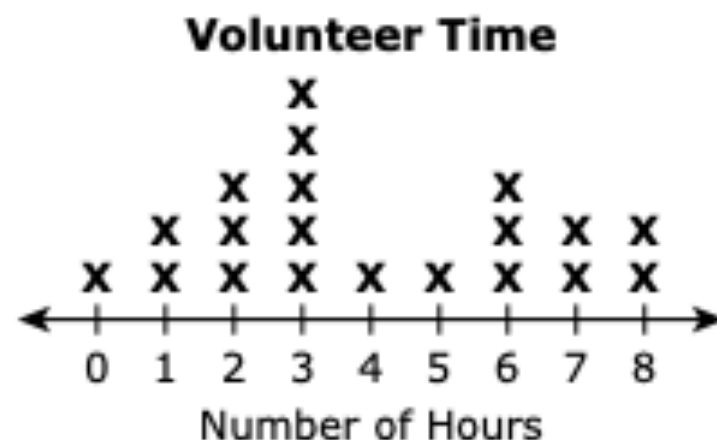
Part B

In the new logo, what fraction of the parallelogram is shaded?

- A.  $\frac{1}{12}$
- B.  $\frac{1}{6}$
- C.  $\frac{1}{4}$
- D.  $\frac{1}{3}$

Use the information provided to answer Part A and Part B for question 17.

Janet surveyed a class of students. She recorded the number of hours that each student volunteered. This line plot shows the results of the survey.



**17. Part A**

How many students did Janet survey?

Enter your answer in the box.

**Part B**

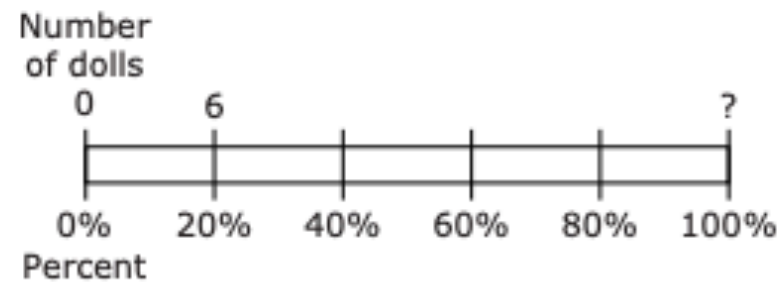
What is the mean number of hours volunteered by the students in the survey?

Enter your answer in the box.

- 18.** Let  $x$  represent any number in the set of even integers greater than 1.

Which inequality is true for all values of  $x$ ?

- A.**  $x < 0$
  - B.**  $x > 0$
  - C.**  $x < 4$
  - D.**  $x > 4$
- 19.** Anita brings 6 dolls to her grandma's house. These dolls represent 20% of Anita's doll collection, as shown in the diagram.



What is the total number of dolls in Anita's doll collection?

Enter your answer in the box.

- 20.** A company makes yellow golf balls and white golf balls. The table shows the company's sales of yellow golf balls for the last 3 years.

**Yellow Golf Balls**

Year	Number of Yellow Golf Balls Sold
1	204,132
2	225,624
3	237,108

- The company expects sales of yellow golf balls to continue to increase in year 4.
- The company also expects the ratio of yellow golf ball sales to white golf ball sales in year 4 to be about 1 : 5 .
- The average selling price of a box of 12 yellow or 12 white golf balls is \$23.94.

Estimate the company's total sales, in dollars, of golf balls in year 4. Show all your work. Explain how you determined your estimate.

Enter your estimate, your work, and your explanation in the space provided.

Use the information provided to answer Part A through Part D for question 21.

Chad drove 168 miles in 3 hours.

**21. Part A**

How many miles per hour did Chad drive?

Enter your answer in the box.

**Part B**

Chad will drive 672 more miles. He continues to drive at the same rate.

How many hours will it take Chad to drive the 672 miles?

Enter your answer in the box.

**Part C**

Chad stopped and filled the car with 11 gallons of gas. He had driven 308 miles using the previous 11 gallons of gas.

How many miles per gallon did Chad's car get?

Enter your answer in the box.

**Part D**

Chad's car continues to get the same number of miles per gallon.

How many gallons of gas will Chad's car use to travel 672 miles?

Enter your answer in the box.

The number of blueberry muffins that a baker makes each day is 40% of the total number of muffins she makes.

**22. Part A**

On Monday, the baker makes 36 blueberry muffins.

What is the total number of muffins that the baker makes on Monday?

Enter your answer in the box.

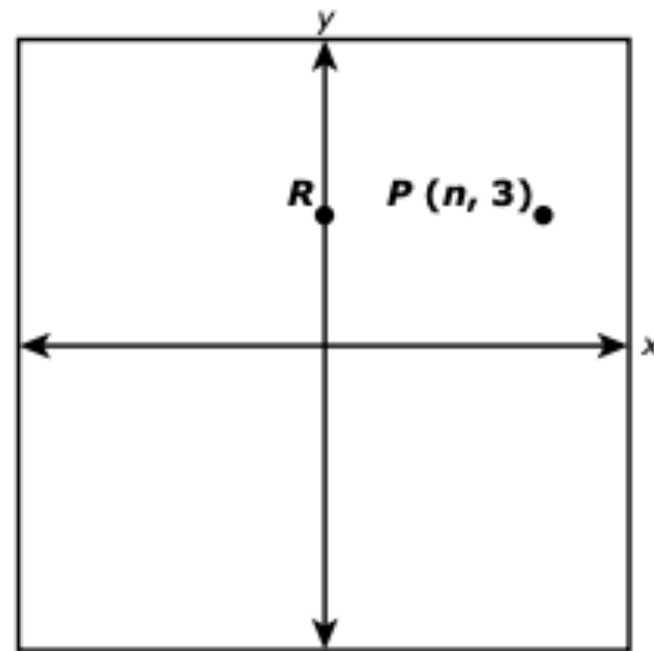
**Part B**

On Tuesday, the baker makes a total of 60 muffins.

How many blueberry muffins does the baker make on Tuesday?

Enter your answer in the box.

- 23.** The graph shows the location of point  $P$  and point  $R$ . Point  $R$  is on the  $y$ -axis and has the same  $y$ -coordinate as point  $P$ .



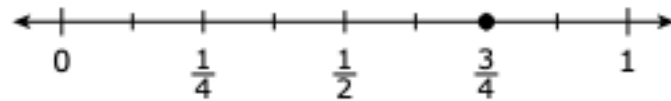
Point  $Q$  is graphed at  $(n, -2)$ . The distance from point  $P$  to point  $Q$  is equal to the distance from point  $P$  to point  $R$ .

What is the distance from point  $P$  to point  $Q$ ? What is the value of  $n$ ? Explain how you determined the distance from point  $P$  to point  $Q$ , and the value of  $n$ .

Enter your answers and your explanations in the space provided.

Use the information provided to answer Part A and Part B for question 24.

This diagram shows a number line.



**24. Part A**

James has a board that is  $\frac{3}{4}$  foot long. He wants to cut the board into pieces that are each  $\frac{1}{8}$  foot long.

How many pieces can James cut from the board? Explain how James can use the number line diagram to determine the number of pieces he can cut from the board.

Enter your answer and your explanation in the space provided.

**Part B**

Write an equation using division that represents how James can find the number of pieces he can cut from the board.

Enter your equation in the space provided.



Use the information provided to answer Part A and Part B for question 25.

Greg bought 4 notebooks for \$6.40.

**25. Part A**

Which equation can be used to determine the price,  $p$ , in dollars, of 1 notebook?

A.  $\frac{p}{4} = 6.40$

B.  $\frac{p}{6.40} = 4$

C.  $4p = 6.40$

D.  $6.40p = 4$

**Part B**

What is the price, in dollars, of 1 notebook?

Enter your answer in the box.

**26. Part A**

A group of hikers buys 8 bags of mixed nuts. Each bag contains  $3\frac{1}{2}$  cups of mixed nuts. The mixed nuts are shared evenly among 12 hikers. How many cups of mixed nuts will each hiker receive? Show your work or explain your answer.

Enter your answer and your work or explanation in the space provided.

**Part B**

The hikers plan to visit a scenic lookout. They will rest after they hike 2 miles. Then they will hike the remaining  $1\frac{3}{4}$  miles to the lookout. The trail the hikers will use to return from the lookout is  $\frac{1}{2}$  mile shorter than the trail they will use to go to the lookout. Each hiker will bring  $\frac{1}{4}$  gallon of water for each mile to and from the lookout.

- Determine the total distance, in miles, each hiker will hike. Show your work or explain your answer.
- Determine the total number of gallons of water each hiker will bring. Show your work or explain your answer.

Enter your answers and your work or explanations in the space provided.

**27.** There are 5,280 feet in 1 mile. How many inches are in 2 miles?

- A.** 10,560
- B.** 63,360
- C.** 126,720
- D.** 253,440

