

تم تحميل هذا الملف من موقع المناهج الإماراتية



حل تجميعة أسئلة وفق الهيكل الوزاري منهج ريفيل

موقع المناهج ← المناهج الإماراتية ← الصف السادس ← رياضيات ← الفصل الأول ← حلول ← الملف

تاريخ إضافة الملف على موقع المناهج: 2024-11-16 22:48:36

ملفات اكتب للمعلم اكتب للطالب الاختبارات الالكترونية الاختبارات ا حلول اعروض بوربوينت ا أوراق عمل منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك الامتحان النهائي للمدرس

المزيد من مادة رياضيات:

إعداد: AlNuaimi Mriam

التواصل الاجتماعي بحسب الصف السادس



صفحة المناهج الإماراتية على فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف السادس والمادة رياضيات في الفصل الأول

حل أسئلة الامتحان النهائي القسم الورقي منهج ريفيل

1

أسئلة الامتحان النهائي القسم الورقي منهج ريفيل

2

نموذج تدريبي ثان وفق الهيكل الوزاري القسم الكتابي منهج ريفيل

3

نموذج تدريبي أول وفق الهيكل الوزاري القسم الكتابي منهج ريفيل

4

نموذج تدريبي ثان وفق الهيكل الوزاري القسم الالكتروني منهج ريفيل

5



الإمارات العربية المتحدة
وزارة التربية والتعليم



School Operation Sector
Council 6 Cluster 7
Al Jahili School C2&3

Exam Coverage
Grade 6 Mathematics
General Stream
Academic Year 2024/2025-Term 1

School Principal: Fatima AlNasri



Done by: Mriam AlNuaimi

Academic Year	2024/2025
العام الدراسي	
Term	1
الفصل	
Subject	Mathematics/Reveal
المادة	الرياضيات/ريفيل
Grade	6
الصف	
Stream	General
المسار	العام
Number of MCQ	15
عدد الأسئلة الموضوعية	
Marks of MCQ	4
درجة الأسئلة الموضوعية	

Number of FRQ	6
عدد الأسئلة المقالية	
Marks per FRQ	(4-10)
الدرجات للأسئلة المقالية	
Type of All Questions	MCQ/ الأسئلة الموضوعية
نوع كافة الأسئلة	FRQ/ الأسئلة المقالية
Maximum Overall Grade	100
الدرجة القصوى الممكنة	
Exam Duration -	150 minutes
مدة الامتحان -	
Mode of Implementation -	SwiftAssess & Paper-Based
طريقة التطبيق -	
Calculator	Not Allowed
الآلة الحاسبة	غير مسموحة

*	Questions might appear in a different order in the actual exam, or on the exam paper.	
*		قد تظهر الأسئلة بترتيب مختلف في الامتحان الفعلي، أو على ورقة الامتحان
**	As it appears in the textbook, LMS, and (Main_IP).	
**		كما وردت في كتاب الطالب و LMS والخطة الفصلية.

Part1	Type of Questions	FQR	Marks per each Question	4-10 marks
1	Use ratio and rate reasoning to solve real-world and mathematical problems.	1-6		Page:45

1. A survey showed that 4 out of 5 students own a bicycle. Based on this result, how many of the 800 students in a school own a bicycle?

Step 1:

$$\frac{\text{bicycle students}}{5} = \frac{b}{800}$$

Step 2 :

$$4 \times 800 = 3200$$

Step 3: $3200 \div 5$

$= 640$ students own a bicycle

2. A survey of Mr. Thorne's class shows that 5 out of 8 students will buy lunch today. Based on this result, how many of the 720 students in the school will buy today?

Step 1:

$$\frac{\text{Buy students}}{8} = \frac{b}{720}$$

Step 2 :

$$5 \times 720 = 3600$$

Step 3: $3600 \div 8$

$= 450$ students

3. The ratio of the number of baskets made by Tony to the number of baskets made by Colin is 2 to 3. Tony made 10 baskets. How many baskets did Colin make?

Step 1:

$$\frac{\text{Tony}}{\text{Colin}} = \frac{2}{3} = \frac{10}{c}$$

Step 2 :

$$3 \times 10 = 30$$

Step 3: $30 \div 2$

$$= 15 \text{ baskets}$$

4. In the school choir, there is 1 boy for every 4 girls. There are a total of 11 boys. How many girls are in the choir?

Step 1:

$$\frac{\text{boy}}{\text{girl}} = \frac{1}{4} = \frac{11}{g}$$

Step 2 :

$$4 \times 11 = 44$$

Step 3: $44 \div 1$

$$= 44 \text{ girls}$$

5. Liberty Middle School has 600 students. In Anna's class, 3 out of 8 students walk to school. How many students at the school can be expected to walk to school?

Step 1:

$$\frac{\text{Student walk}}{\text{Total students}} = \frac{3}{8} = \frac{s}{600}$$

Step 2 :

$$3 \times 600 = 1800$$

Step 3: $1800 \div 8$

$$= 225 \text{ students}$$

6. Pine Hill Middle School has 300 students. In Zoey's class, 2 out of 5 students belong to a club. How many students at the school would you expect to belong to a club?

Step 1:

$$\frac{\text{Student belong}}{\text{Club}} = \frac{2}{5} = \frac{b}{300}$$

Step 2 :

$$2 \times 300 = 600$$

Step 3: $600 \div 5$
 $= 120 \text{ students}$

1- Mr. Anderson is ordering pizzas for a class pizza party. **Pizza Place has a special where he can buy 3 large pizzas for \$18.75.** At **Mario's Pizzeria, he can buy 4 large pizzas for \$22.** If **he needs to buy 12 pizzas,** how much will he save if he buys the pizzas from Mario's Pizzeria instead of Pizza Place? (Example 1)

Pizza Place	Mario's Pizzeria
$\$ 18.75 \div 3$ $\$ 6.25$	$\$ 22 \div 4$ $\$ 5.5$

$$\$6.25 - \$5.5 = \underline{\$ 0.75}$$

$$12 \times \$0.75 = \underline{\$ 9}$$

Skylar and Rodrigo each recorded how far they traveled while skateboarding. **Skylar** traveled 65 feet in 5 seconds and **Rodrigo** traveled 108 feet in 8 seconds. **How much farther did Rodrigo travel per second than Skylar? ? (Example 1)**

Skylar traveled	Mario's traveled
$65 \div 5$	$108 \div 8$
13	13.5

$$13.5 - 13 = \underline{0.5} \text{ feet}$$

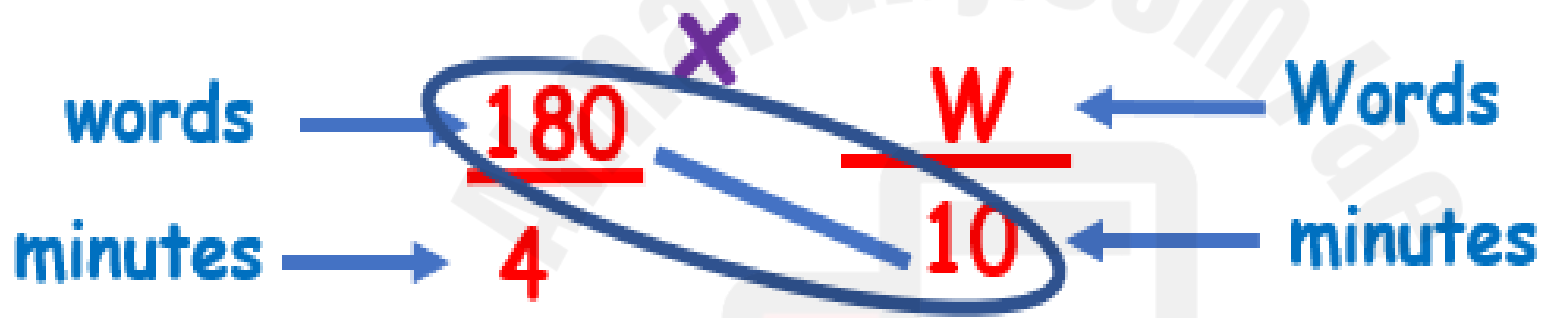
3- Melissa is buying party favors to make gift bags. **Supplies LTD sells a 5-pack of favors for \$11.25** and Parties and **More sells a 3-pack of favors for \$8.25**. At these rates, how much more will she spend if **she buys 15 more favors from Supplies LTD than Parties and More?** (Example 1)

Supplies	More
$\$ 11.25 \div 5$	$\$ 8.25 \div 3$
$\$ 2.25$	$\$ 2.75$

$$\$2.75 - \$2.25 = \underline{\$ 0.5}$$

$$15 \times \$0.5 = \underline{\$ 7.5}$$

4- Tara can type 180 words in 4 minutes. At this rate, how many words would you expect her to type in 10 minutes? (Example 2)



$$W = \frac{180 \times 10}{4} = \frac{1800}{4} = 450 \text{ Words}$$

11. Open Response A barge traveled 120 miles downstream in 8 hours. Then it traveled 100 miles upstream in 10 hours. (Lesson 8)

A. How did the rate of speed downstream compare to its rate of speed upstream?

**rate of speed downstream = 15 mph;
rate of speed upstream = 10 mph; The
rate of speed downstream was faster
than the rate of speed upstream.**

B. What was the difference between the rates of speed?

5 miles per hour

Find the percent of a number by reasoning about percent as a rate per 100 and by using bar diagrams, ratio tables, equivalent ratios, and double number lines.

1. The graph shows the career interests of the students at Linda's school. Suppose there are 400 students at the school. How many of them want to be an athlete?

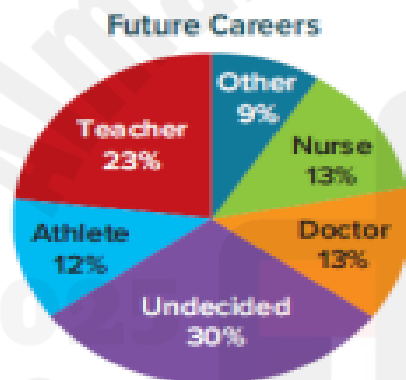
$$\frac{\text{Part}}{\text{whole}} = \frac{\quad}{100}$$

$$\frac{p}{400} = \frac{12}{100}$$

$$p = 12 \times 400 = 4800$$

$$= 4800 \div 100$$

$$p = 48$$



2. The graph shows the favorite activities of campers at a summer camp. Suppose there are 300 campers at the camp. How many campers favor fishing?

$$\frac{\text{Part}}{\text{whole}} = \frac{\quad}{100}$$

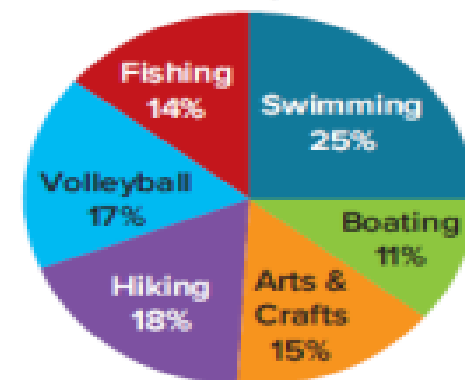
$$\frac{p}{300} = \frac{14}{100}$$

$$p = 14 \times 300 = 4200$$

$$= 4200 \div 100$$

$$p = 42$$

Favorite Camp Activities



Use any method to find the percent of each number.

3. 15% of 240 =

$$= \frac{15}{100} \times 240$$

$$= \frac{15 \times 240}{100}$$

$$= \frac{\cancel{3600}}{\cancel{100}}$$

$$= 36$$

4. 65% of 180 =

$$= \frac{65}{100} \times 180$$

$$= \frac{65 \times 180}{100}$$

$$= \frac{\cancel{11700}}{\cancel{100}}$$

$$= 117$$

5. 250% of 82 =

$$= \frac{250}{100} \times 82$$

$$= \frac{250 \times 82}{100}$$

$$= \frac{\cancel{20500}}{\cancel{100}}$$

$$= 205$$

6. 150% of 44 =

$$= \frac{150}{100} \times 44$$

$$= \frac{150 \times 44}{100}$$

$$= \frac{6600}{100}$$

$$= 66$$

7. 0.15% of 350 =

$$= \frac{0.15}{100} \times 350$$

$$= \frac{0.15 \times 350}{100}$$

$$= \frac{52.5}{100}$$

$$= 0.525$$

8. 0.4% of 168 =

$$= \frac{0.4}{100} \times 168$$

$$= \frac{0.4 \times 168}{100}$$

$$= \frac{67.2}{100}$$

$$= 0.672$$

4	Apply prior knowledge about division and reciprocals to divide fractions by whole and mixed numbers. *Solve problems by using the standard algorithms for addition, subtraction, multiplication, and division to compute with multi-digit decimals.	1-7	Page:185
---	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----	----------

1. The drama teacher is making bandanas for costumes. She is cutting $\frac{1}{2}$ yard of fabric into 6 bandanas of the same size. Write and solve an equation to find how much fabric there will be for each bandana. (Example 1)

$$\frac{1}{2} \div 6 = \frac{1}{12} \cdot \frac{1}{12} \text{ yd}$$

2. A landscape designer has $\frac{4}{5}$ ton of mulch to divide equally among 8 customers. Write and solve an equation to find how much mulch each customer will receive. (Example 1)

$$\frac{4}{5} \div 8 = \frac{11}{10} \cdot \frac{1}{10} \text{ ton}$$

Divide. Write in simplest form. (Examples 2 and 3)

3. $2\frac{4}{5} \div 4 =$

$$\frac{2 \times 5 + 4}{5} \times \frac{1}{4}$$

$$\frac{14}{5} \times \frac{1}{4} = \frac{\overset{2 \times 7}{14}}{\underset{2 \times 10}{20}} = \frac{7}{10}$$

4. $6\frac{2}{3} \div 8 =$

$$\frac{6 \times 3 + 2}{3} \times \frac{1}{8}$$

$$\frac{20}{3} \times \frac{1}{8} = \frac{\overset{4 \times 5}{20}}{\underset{4 \times 6}{24}} = \frac{5}{6}$$

5. $4\frac{2}{3} \div 6 =$

$$\frac{7}{9}$$

$$6. 3\frac{3}{5} \div 1\frac{1}{2} = \frac{3 \times 5 + 3}{5} \div \frac{1 \times 2 + 1}{2}$$

$$\frac{18}{5} \div \frac{3}{2}$$

$$7. 3\frac{3}{4} \div 1\frac{2}{3} = \frac{3 \times 4 + 3}{4} \div \frac{1 \times 3 + 2}{3}$$

$$\frac{15}{4} \div \frac{5}{3}$$

Keep Change Flip

$$\cancel{3} \times 6 \frac{18}{5} \times \frac{2}{\cancel{3}} = \frac{12}{5} = 2\frac{2}{5}$$

Keep Change Flip

$$\cancel{3} \times 5 \frac{15}{4} \times \frac{3}{\cancel{5}} = \frac{9}{4} = 2\frac{1}{4}$$

$$8. 4\frac{1}{2} \div 2\frac{7}{10} =$$

$\frac{5}{3}$ or $1\frac{2}{3}$

2025

2024

موقع المناهج
الاماناهج.com

Identify the quadrant in which each point is located.

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

Quadrant III

2. $\left(5\frac{3}{4}, -6\frac{1}{5}\right)$

Quadrant IV

3. $\left(\frac{4}{5}, 3\frac{3}{4}\right)$

Quadrant I

4. $\left(-3\frac{1}{2}, 2\frac{4}{5}\right)$

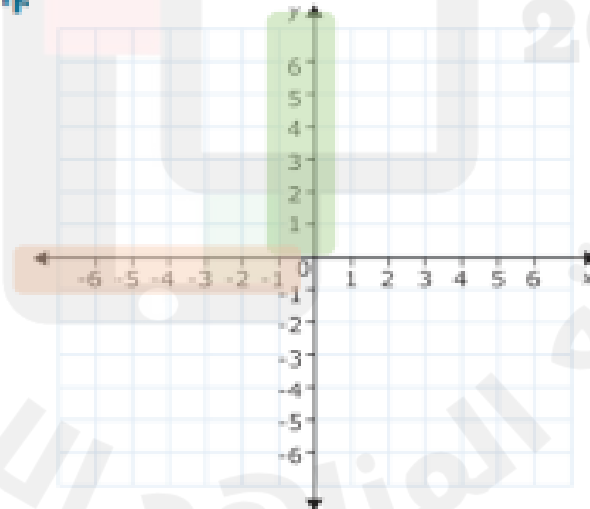
Quadrant II

5. Identify the axis on which the
point $\left(-\frac{2}{3}, 0\right)$ is located. (Example 2)

x-axis

6. Identify the axis on which the
point $\left(0, 6\frac{3}{5}\right)$ is located. (Example 2)

y-axis

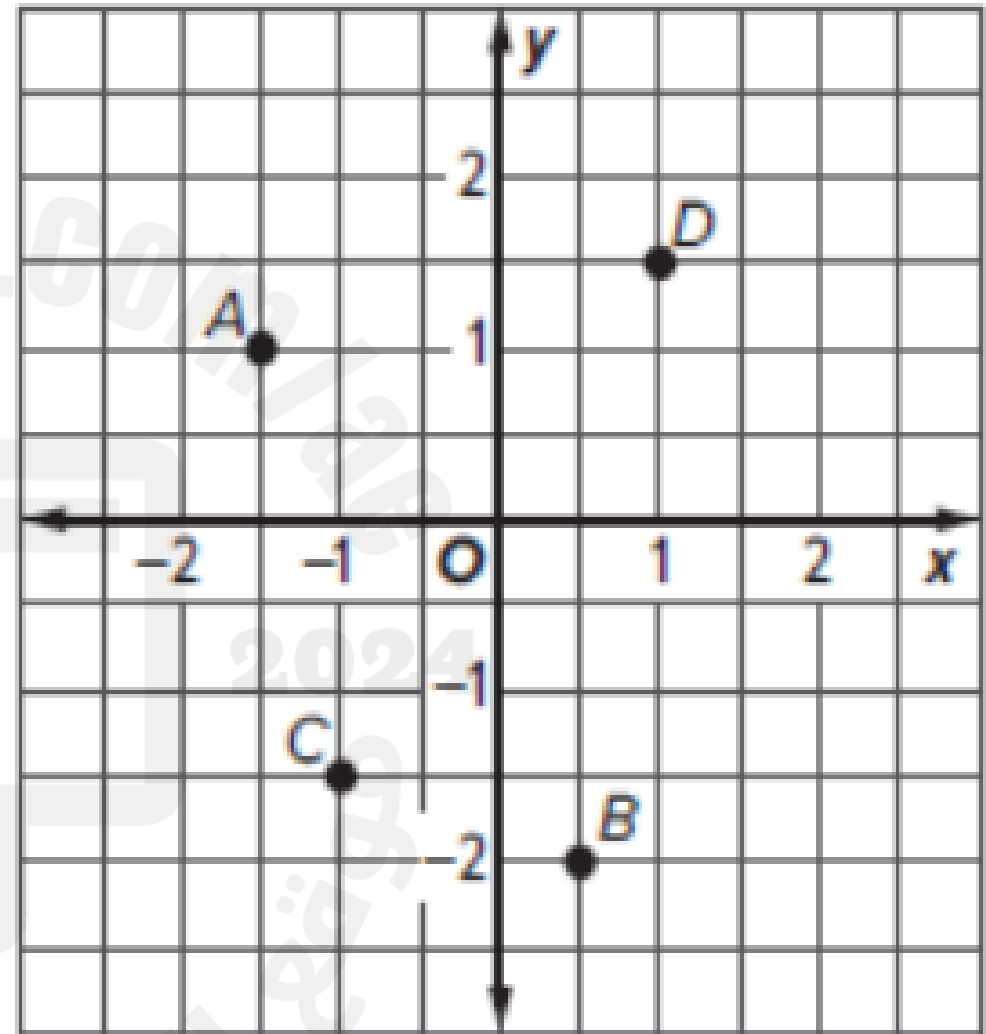


Use the coordinate plane. Identify the ordered pair that names each point.

7. A $(-1\frac{1}{2}, 1)$

8. B $(\frac{1}{2}, -2)$

9. C $(-1, -1\frac{1}{2})$

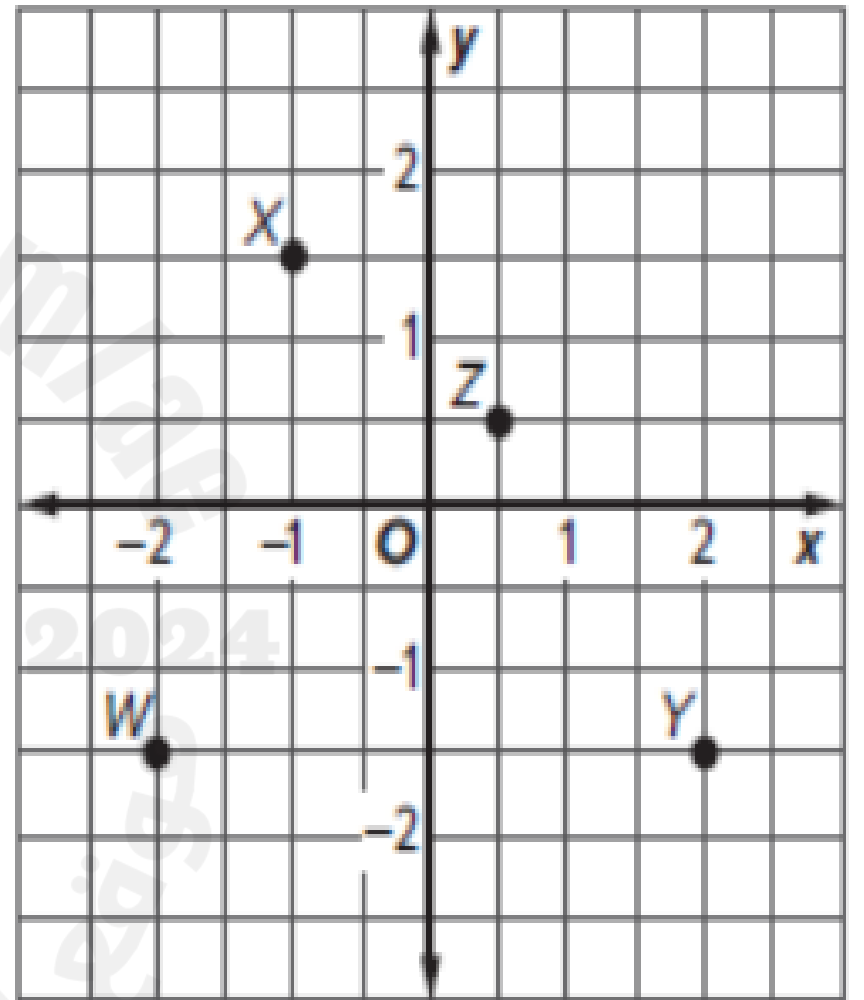


Use the coordinate plane. Identify the point for each ordered pair.

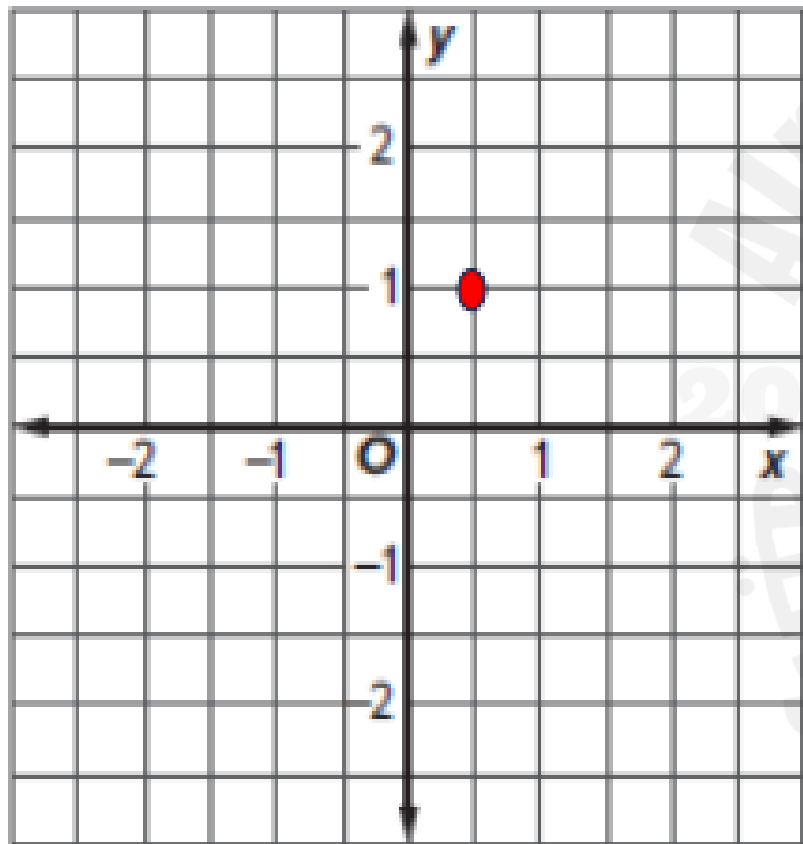
10. $\left(\frac{1}{2}, \frac{1}{2}\right)$ (+, +) Z

11. $\left(-1, 1\frac{1}{2}\right)$ (-, +) X

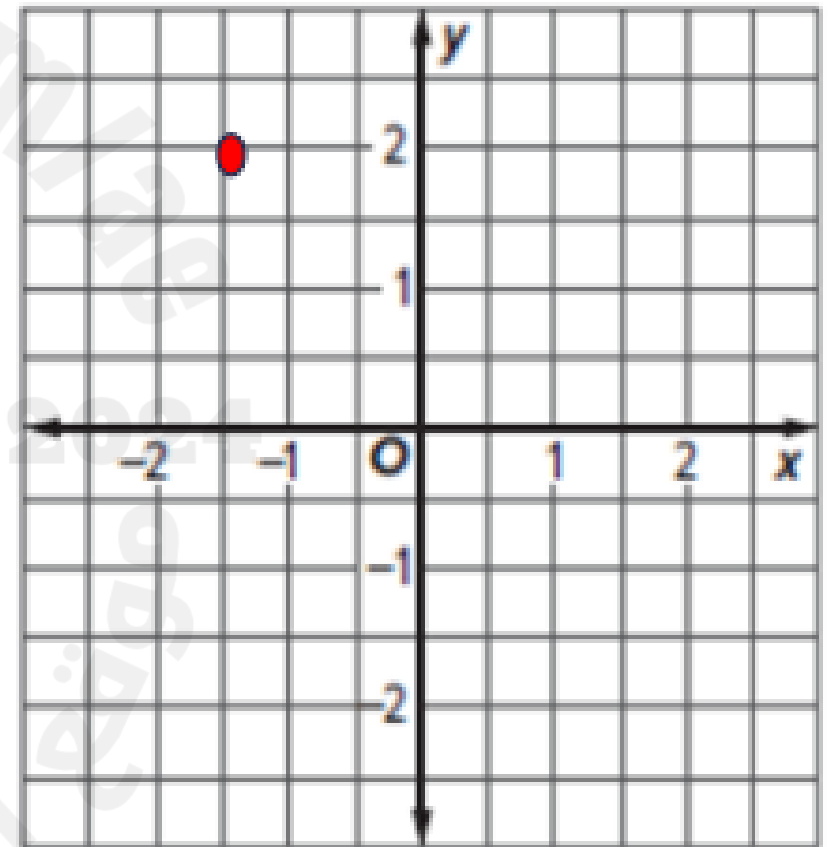
12. $\left(-2, -1\frac{1}{2}\right)$ (-, -) W



13. Graph $A\left(\frac{1}{2}, 1\right)$



14. Graph $X\left(-1\frac{1}{2}, 2\right)$



Graph each set of rational numbers on a number line.

1. $\left\{-0.9, -2\frac{1}{2}, 0.25, -\frac{3}{4}\right\}$

-2.5

-0.75

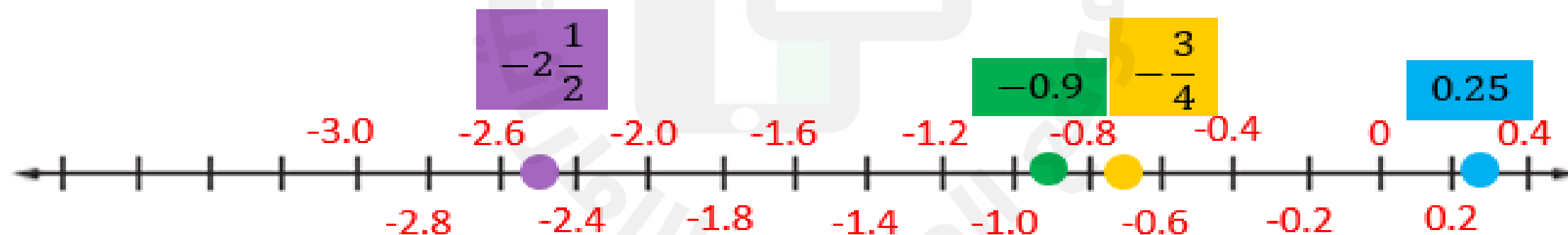
$$\begin{array}{r} 0.75 \\ 4 \overline{) 300} \\ \underline{-28} \\ 20 \\ \underline{-20} \\ 00 \end{array}$$

$$4 \times 5 = 20$$

$$4 \times 6 = 24$$

$$4 \times 7 = 28$$

$$4 \times 8 = 32$$



Graph each set of rational numbers on a number line.

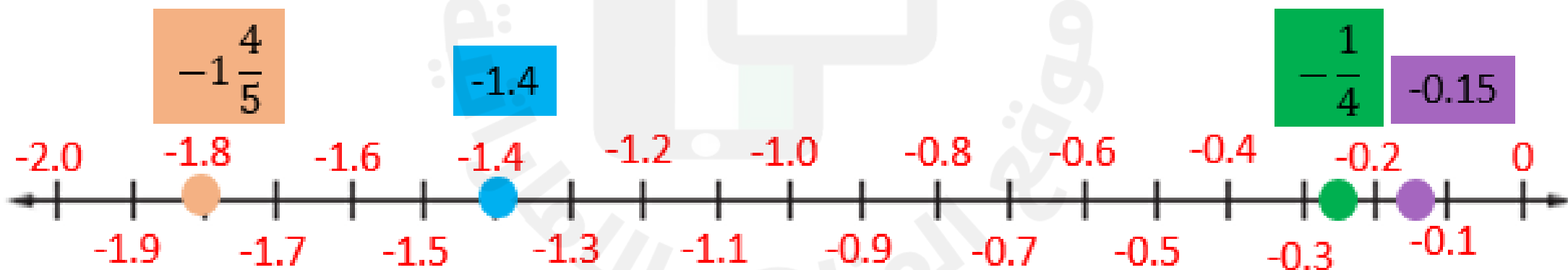
2. $\left\{-\frac{1}{4}, -1.4, -1\frac{4}{5}, -0.15\right\}$

\downarrow
 -0.25

\downarrow
 -1.8

$$\begin{array}{r} 0.25 \\ 4 \overline{) 100} \\ \underline{-8} \\ 20 \\ \underline{-20} \\ 00 \end{array}$$

$$\begin{array}{r} 0.8 \\ 5 \overline{) 40} \\ \underline{-40} \\ 00 \end{array}$$



3. Mammoth Cave in Kentucky has a minimum elevation of -124.1 meters. Suppose a hiker traveled to the bottom of the cave. **How many meters** did the hiker travel?

124.1

4. A scuba diver was at a depth of $-80\frac{1}{2}$ feet. **How many feet** did the scuba diver travel if the diver traveled to the surface of the ocean?

80 $\frac{1}{2}$

Fill in the ____ with $<$, $>$, or $=$ to make a true statement.

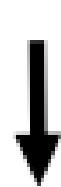
5. -0.24 $-\frac{3}{16}$



$$\begin{array}{r} 0.18 \\ 16 \overline{)300} \\ \underline{-16} \\ 140 \end{array}$$

$-0.24 < -0.18$

6. $-\frac{5}{8}$ -0.76



$$\begin{array}{r} 0.62 \\ 8 \overline{)500} \\ \underline{-48} \\ 20 \end{array}$$

$-0.62 > -0.76$

7. $-4\frac{4}{25}$ -4.16



$$\begin{array}{r} 0.16 \\ 25 \overline{)400} \\ \underline{-25} \\ 150 \end{array}$$

$-4.16 = -4.16$

8. -5.52 $-5\frac{7}{15}$

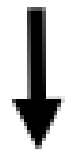
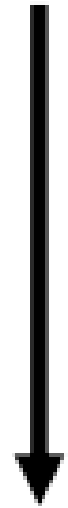
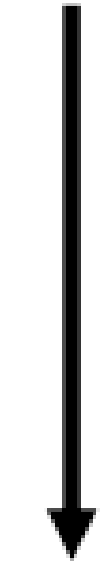


$$\begin{array}{r} 0.46 \\ 15 \overline{)700} \\ \underline{-60} \\ 100 \\ \underline{-90} \\ 10 \end{array}$$

$-5.52 < -5.16$

Order each set of rational numbers from least to greatest.

9. $\left\{-4.25, -4\frac{7}{10}, -4\frac{3}{20}\right\}$



$$\begin{array}{r} 0.15 \\ 20 \overline{)300} \\ \underline{-20} \\ 100 \\ \underline{-100} \\ 000 \end{array}$$

-4.25

-4.7

-4.15

$-4\frac{7}{10}, -4.25, -4\frac{3}{20}$

10. $\left\{-1.55, -1\frac{11}{100}, -1\frac{23}{25}\right\}$



$$\frac{23 \times 4}{25 \times 4} = \frac{92}{100}$$

$$= 0.92$$

-1.55

-1.11

-1.92

$-1\frac{23}{25}, -1.55, -1\frac{11}{100}$

7

Describe a ratio relationship using correct mathematical language.

1-6

Page:11

1. In Suri's coin purse, she has 6 dimes and 4 quarters. Martha has 5 dimes and 3 quarters. Suri thinks that the ratio of dimes to quarters in both purses is the same because they each have 2 more quarters than dimes. Is the same ratio of dimes to quarters maintained? Justify your response.

Suri's Ratio is \longrightarrow 6:4

Martha Ratio is \longrightarrow 5:3

No not the same

2. In a trivia game, Levi answered 8 questions correctly out of 10 turns in the game. He then answered the next three questions correctly. He reasoned that because he added 3 to both the total questions and his correct responses, that the ratio of correct answers to total questions remained the same. Is he correct? Justify your response.

Original Ratio was \longrightarrow 8:10

New Ratio is

$$\begin{array}{l} 8 + 3 = 11 \\ 10 + 3 = 13 \end{array} \longrightarrow 11:13$$

The ratios are not the same

3. Riley needs to make fruit punch for the family reunion. One batch of punch has the ingredients shown. If the punch bowl holds **27 cups**, how many cups of orange juice will she need to keep the ratio in a full punch bowl the same?

Item	Cups
Cranberry Juice	4
Lemon Lime Soda	1
Orange Juice	2
Pineapple Juice	2

9

$$4 + 1 + 2 + 2 = 9$$

$$\frac{2}{9} = \frac{\text{orange}}{27}$$

$$2 \times 27 = 54$$

$$54 \div 9 = 6 \text{ cups}$$

4. A small fruit basket contains the fruits shown. A large basket has the same ratio of fruits as the small basket.

Type of Fruit	Amount
Apple	6
Orange	5
Pear	3

14

If the large basket has **42 total pieces** of fruit, how many are pears?

$$6 + 5 + 3 = 14$$

$$\frac{3}{14} = \frac{\text{pears}}{42}$$

$$3 \times 42 = 126$$

$$126 \div 14 = 9 \text{ pieces}$$

5. Mrs. Santiago is buying doughnuts for her office. Each box contains 6 glazed, 4 cream filled, and 2 chocolate flavored doughnuts. If there were 20 total cream filled doughnuts, how many chocolate doughnuts did she buy?

Step 1:

Glazed	6
Cream	4
Chocolate	2

Step 2:

$$\frac{\text{Cream}}{\text{Chocolates}} = \frac{4}{2} = \frac{20}{\text{chocolates}}$$

Step 3 :

$$2 \times 20 = 40$$

Step 4: $40 \div 4 = 10$ chocolate doughnuts

6. A small batch of trail mix contains 2 cups of raisins, 2 cups of peanuts, 1 cup of sunflower seeds, and 1 cup of chocolate coated candies. A large batch has the same ratio of ingredients as a small batch. If the large batch has 8 cups of peanuts, how many cups of sunflower seeds are in a large batch?

Step 1:

$$\frac{\text{Peanuts}}{\text{Sunflower}} = \frac{2}{1} = \frac{8}{s}$$

Step 2:

$$1 \times 8 = 8$$

Step 3 :

$$8 \div 2 = 4 \text{ cups of sunflower}$$

Use any strategy to solve each problem.

1. Jayden's snow cone machine makes 3 snow cones from 0.5 pound of ice. How many snow cones can be made with 5 pounds of ice? (Example 1)

$$\begin{array}{ccc} \text{snow} \rightarrow & \frac{3}{0.5} & \times \frac{?}{5} \leftarrow \text{snow} \\ \text{pounds} \rightarrow & & \leftarrow \text{pounds} \end{array}$$

$$\frac{3 \times 5}{0.5} = \frac{15}{0.5} = 30 \text{ snow}$$

2. Nyoko is having a pizza party. Two large pizzas serve 9 people. How many large pizzas should she order to serve 36 guests at the party? (Example 1)

$$\begin{array}{ccc} \text{large} \rightarrow & \frac{2}{9} & \times \frac{?}{36} \leftarrow \text{large} \\ \text{serve} \rightarrow & & \leftarrow \text{serve} \end{array}$$

$$\frac{2 \times 36}{9} = \frac{72}{9} = 8 \text{ pizzas}$$

3. The world record for the most number of speed skips in 60 seconds is 332 skips. If the record holder skipped at a constant ratio of seconds to skips, how many skips did she make in 15 seconds? (Example 2)

$$\begin{array}{ccc} \text{seconds} & \rightarrow & \frac{60}{332} \\ \text{skips} & \rightarrow & \frac{15}{?} \end{array}$$

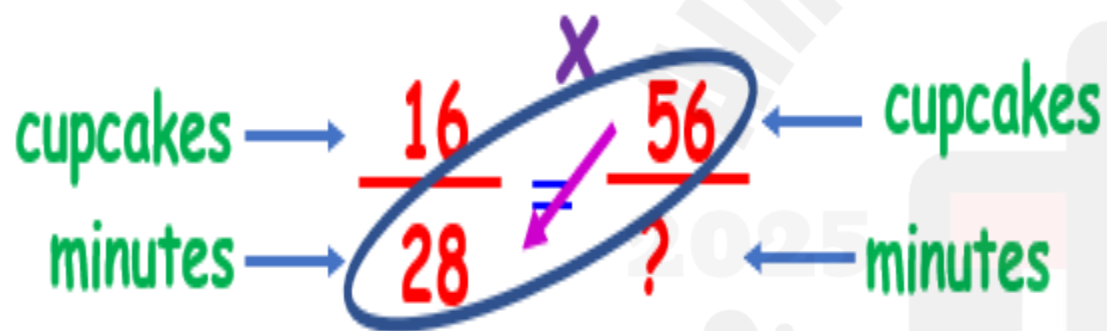
$$\frac{15 \times 332}{60} = \frac{4980}{60} = 83 \text{ skips}$$

4. A recipe for homemade clay calls for 6 cups of water for every 12 cups of flour. How many cups of water are needed when 4 cups of flour are used? (Example 2)

$$\begin{array}{ccc} \text{cups of water} & \rightarrow & \frac{6}{12} \\ \text{cups of flour} & \rightarrow & \frac{?}{4} \end{array}$$

$$\frac{6 \times 4}{12} = \frac{24}{12} = 2 \text{ cups}$$

5. Adrian decorated 16 cupcakes in 28 minutes. If he continues at this pace, how many minutes will it take him to decorate 56 cupcakes? (Example 3)



$$\frac{56 \times 28}{16} = \frac{1568}{16} = 98 \text{ minutes}$$

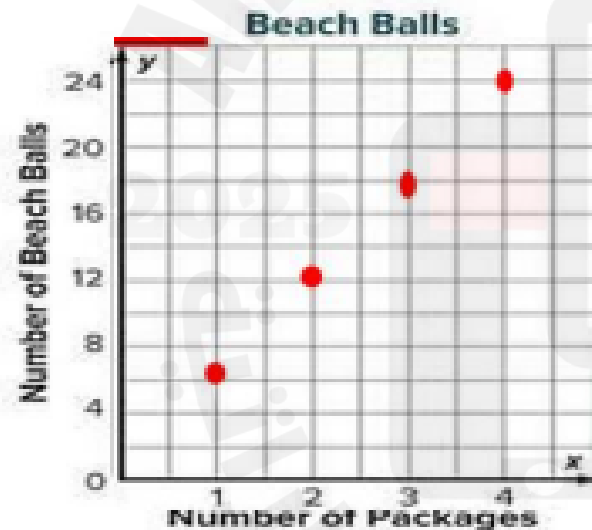
6. A comic book store is having a sale. You can buy 20 comic books for \$35. What is the cost of 8 comic books during the sale? (Example 3)



$$\frac{8 \times 35}{20} = \frac{280}{20} = \$ 14$$

1. Lulah is buying beach balls for her beach themed party. Each package contains 6 beach balls. Generate the set of ordered pairs for the ratio relationship between the number of beach balls y and the number of packages x for a total of 1, 2, 3, and 4 packages. Then graph the relationship on the coordinate plane and describe the pattern in the graph.

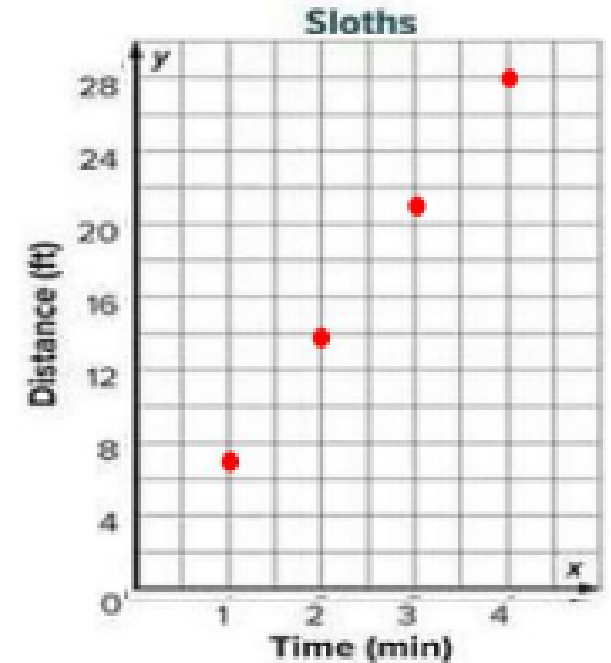
X	1	2	3	4
Y	6	12	18	24



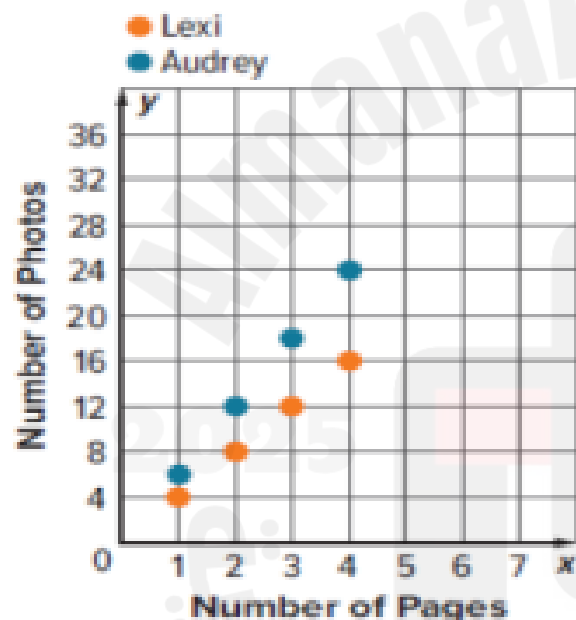
2. A sloth travels about 7 feet every minute. Generate the set of ordered pairs for the ratio relationship between the total distance traveled y and the number of minutes x for a total of 1, 2, 3, and 4 minutes. Then graph the relationship on the coordinate plane and describe the pattern in the graph.

X	1	2	3	4
Y	7	14	21	28

$(1,7), (2,14), (3,21), (4,28)$

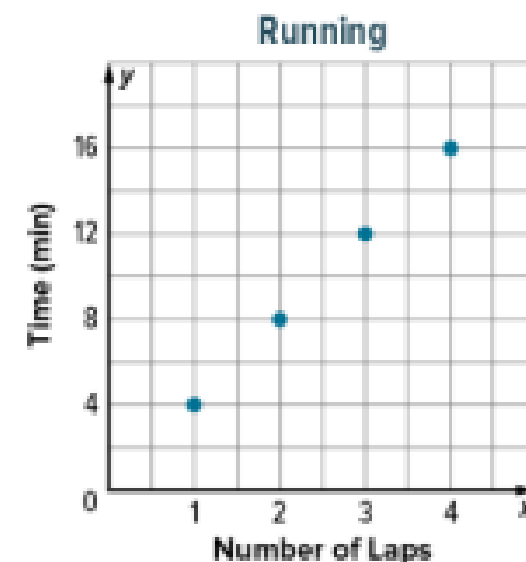


3. Two friends are making scrapbooks. The number of photos Lexi and Audrey place on each page of their scrapbooks is shown in the graph. Describe the ratio relationship for each person.



The ratio of photos to pages for Lexi scrapbook is 4 : 1. The ratio of photos to pages for Audrey scrapbook is 6 : 1. So, Audrey uses more photos per page than Lexi.

4. Lacy is running laps around the track. The time in minutes and the number of laps ran are shown in the graph. Which of the following statements are true about the ratio relationship shown in the graph? Select all that apply.



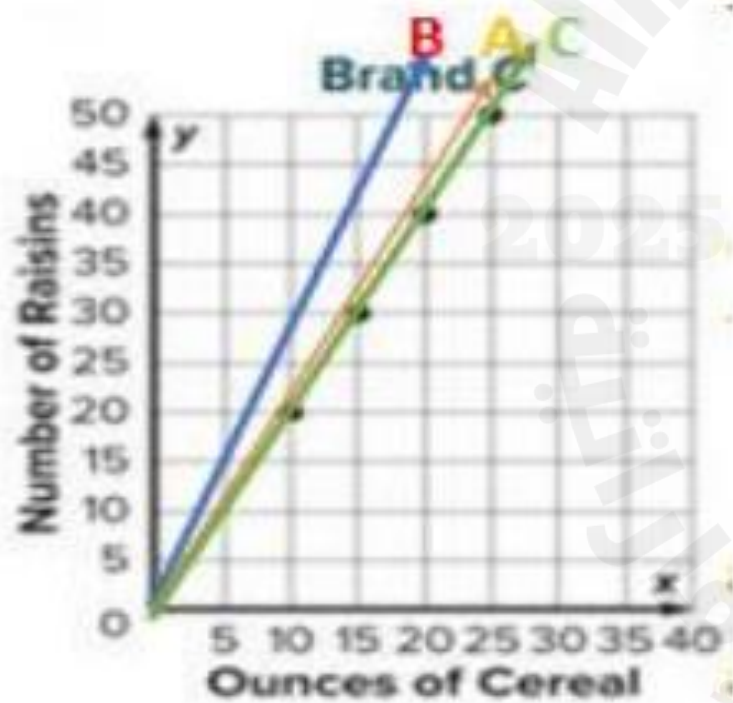
- A) Every 4 minutes, Lacy ran 1 lap.
- B) Lacy ran 8 laps in 2 minutes.
- C) It took Lacy 1 minute to run 4 laps.
- D) In 16 minutes, Lacy completed 4 laps.
- E) Based on the relationship, it would take Lacy 20 minutes to complete 5 laps.

5. **MP Identify Structure** There are 4 quarters for every one dollar and 10 dimes for every dollar. Without graphing, would the ratio of quarters to dollars or dimes to dollars appear to have a steeper line? Explain your reasoning.

dimes to dollars; Sample answer: The ratio of dimes to dollars is 10 : 1 and the ratio of quarters to dollars is 4 : 1. Since 10 is greater than 4, the ratio of dimes to dollars will have a steeper line.

1. Cereal Brand A advertises that they have 60 raisins in their 24-ounce box of cereal. The advertised ratio raisins to ounces for two other cereal brands are shown in the table and graph. Which brand advertises the greatest ratio of raisins to ounces of cereal? Justify your response.

Brand B				
Ounces of Cereal	6	12	20	24
Raisins	18	36	60	72



The greatest ratio of raisins to ounces of cereal is **Brand B**.
 When all 3 ratio relationships are graphed on the same graph, the graph for Brand B is the steepest.

2. At the gym, Alex spends 24 minutes doing resistance training for every 30 minutes spent doing cardio exercises, Carisa spends 15 minutes on resistance for every 20 minutes on cardio, and Manuel spends 14 minutes on resistance for every 15 minutes on cardio. Which person has the greatest ratio of minutes spent on resistance to minutes spent on cardio?

Alex

Resistance (min)	24	48	72
Cardio (min)	30	60	90

Carisa

Resistance (min)	15	45	60
Cardio (min)	20	60	100

Manuel

Resistance (min)	14	56	98
Cardio (min)	15	60	105

The greatest ratio of minutes spent on resistance to minutes spent on cardio is

Manuel.

When all 3 ratio people spend 60 minutes on cardio, Manuel spends 56 minutes on resistance, followed by Alex with 48 minutes, and Carisa with 45 minutes.

3. Mrs. Quinto is comparing the Calories in different types of bread. Wheat bread has 150 Calories for every 2 slices. The Calories in two other types of bread are shown in the table and graph. Which bread has the greatest ratio of Calories to slices?

White Bread

Slices	Calories
2	160
4	320
6	480

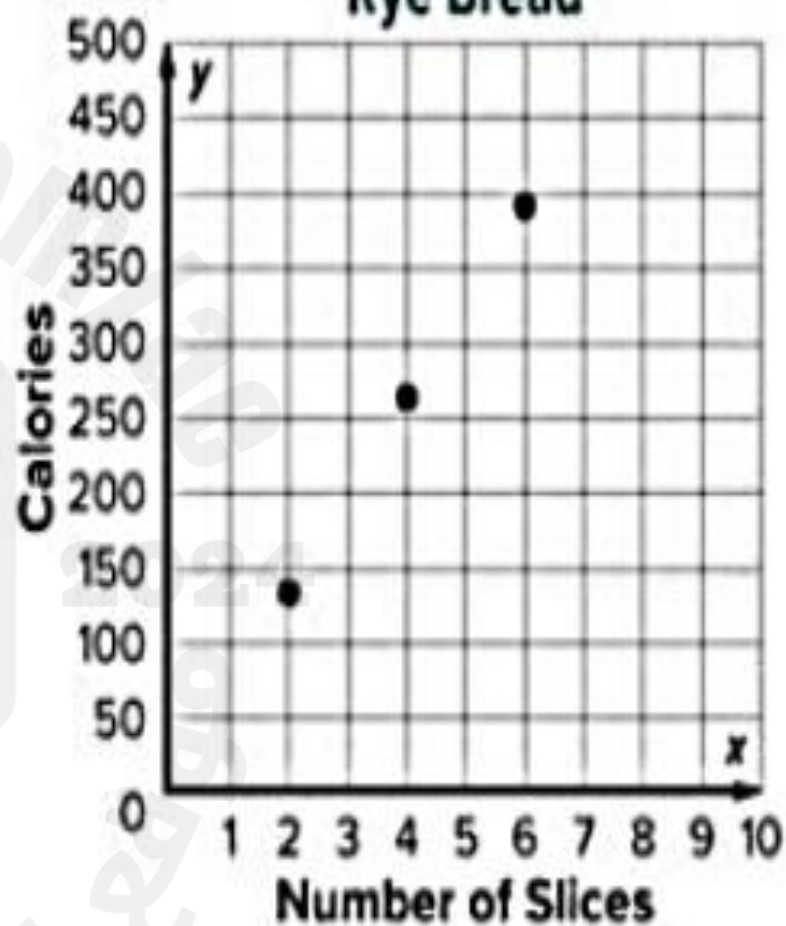
Wheat bread :- 150 : 2

White Bread :- 160 : 2

Rye Bread :- 140 : 2

White Bread

Rye Bread



4. Mrs. Gonzalez wants to hire a catering company for her daughter's quinceanera. The ratios of the cost per person for a child and an adult for two different companies are shown in the table. Mrs. Gonzalez is planning on 25 adults and 12 children attending the party. How much less will it cost for her to hire Planning Pros than Party Time? **\$19.50**

	Party Time	Planning Pros
Cost per Adult (\$)	10.50 +25	9.00 +25
Cost per Child (\$)	6.00 +12	7.50 +12

	Party Time	Planning Pros
Cost per Adult (\$)	35.50	34.00
Cost per Child (\$)	18.00	19.50

$$35.50 \div 18.00 = 1.97$$

$$34.00 \div 19.50 = 1.74$$

5. Charlie, Beth, and Miguel all babysit kids in their neighborhood. The table shows the number of hours and the amount each of them earned last night. If each person babysits for 5 hours next weekend, which person will earn the most money? Use a coordinate plane if needed to solve.

	Charlie	Beth	Miguel
Number of Hours	3	4.5	4
Total Earned (\$)	28.50	42.00	40.00

$$28.50 \div 3$$

$$= 9.5$$

$$42.00 \div 4.5$$

$$= 9.3$$

$$40.00 \div 4$$

$$= 10$$

The most money the Miguel

6. **MP Construct an Argument** Ratio relationships can be described with words or they can be displayed using bar diagrams, tables, and graphs. Which display is more advantageous to use when comparing ratio relationships? Explain your reasoning.

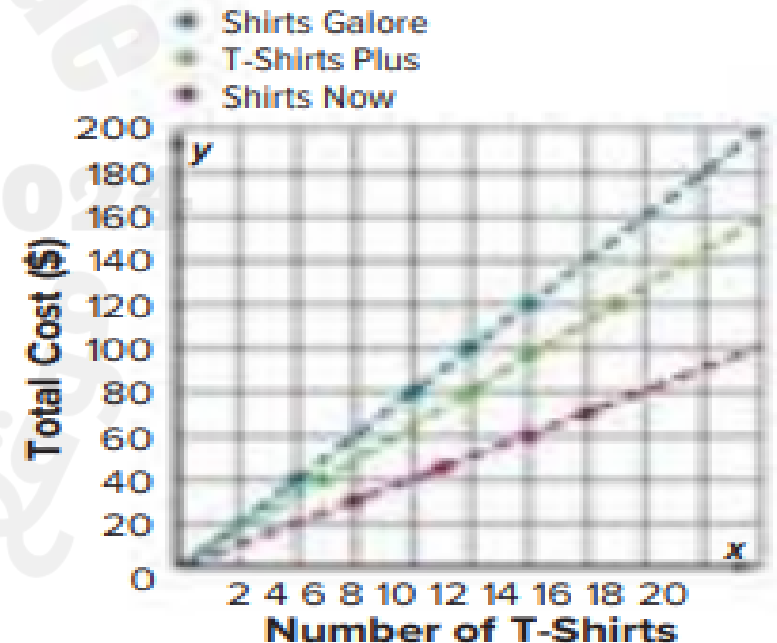
Sample answer: Graphs are more advantageous because I can visually see which relationship has a steeper line. The steeper the line, the greater the ratio.

8. **MP Find the Error** Avery wants to order new practice T-shirts for her soccer team. The ratio of the total cost to the number of T-shirts purchased for three different stores is shown in the graph. Avery says that the shirts will cost less from Shirts Galore because the graph is steeper than the graphs of the other relationships. Find her mistake and correct it.

Sample answer: The graph of the relationship that is steepest represents the relationship that has the greatest ratio of total cost to number of T-shirts. To determine which company has the least cost, she should look for the graph that is the least steep.

7. Give an example of a ratio relationship that you have seen outside of school. How was the ratio relationship displayed, and why was the relationship displayed that way?

Sample answer: Three packages of hot dogs cost \$9.50. The relationship was displayed in words because it's easier and faster for people to understand while shopping.



1. Mrs. Menary made $4\frac{1}{2}$ quarts of lemonade for a school party. How many fluid ounces of lemonade did she make?

$$4.5 \text{ quarts} = \text{fl oz}$$

$$4.5 \times 8 \times 2 \times 2$$

$$= 144 \text{ fl oz}$$

Larger Unit	→	Smaller Unit
1 cup (c)	=	8 fluid ounces (fl oz)
1 pint (pt)	=	2 cups
1 quart (qt)	=	2 pints
1 gallon (gal)	=	4 quarts

3. The Martinez family has $\frac{3}{4}$ gallon of orange juice in the refrigerator. How many cups of orange juice are in the refrigerator?

$$\frac{3}{4} \text{ gallon} = \text{cups}$$

$$0.75 \times 2 \times 2 \times 4$$

$$= 12 \text{ cups}$$

2. A class walked 2.5 miles for a walk-a-thon. How many yards did the class walk?

$$2.5 \text{ miles} = \text{yards}$$

$$2.5 \times 5280 = 13200$$

$$= 13200 \div 3$$

$$= 4,400 \text{ yards}$$

Larger Unit	→	Smaller Unit
1 foot (ft)	=	12 inches (in.)
1 yard (yd)	=	3 feet
1 mile (mi)	=	5,280 feet

4. A grand piano can weigh $\frac{1}{2}$ ton. How many ounces can a grand piano weigh?

$$\frac{1}{2} \text{ ton} = \text{ounces}$$

$$0.5 \times 2000 \times 16$$

$$= 16,000 \text{ ounces}$$

Larger Unit	→	Smaller Unit
1 pound (lb)	=	16 ounces (oz)
1 ton (T)	=	2,000 pounds

5. A female hippopotamus can weigh 48,000 ounces. How many tons can a female hippopotamus weigh?

$$48000 \text{ ounces} = \text{tons}$$

$$48000 \div (16 \times 2000)$$

$$48000 \div 32000 \\ = 1.5 \text{ tons}$$

Larger Unit	→	Smaller Unit
1 pound (lb)	=	16 ounces (oz)
1 ton (T)	=	2,000 pounds

6. At soccer practice, Tracey's best kick travelled a distance of 1,200 inches. For how many yards did she kick the ball?

$$1,200 \text{ inches} = \text{yards}$$

$$1,200 \div (12 \times 3)$$

$$1,200 \div 36 \\ = 33 \frac{1}{3} \text{ yards}$$

Larger Unit	→	Smaller Unit
1 foot (ft)	=	12 inches (in.)
1 yard (yd)	=	3 feet
1 mile (mi)	=	5,280 feet

7. An elephant can drink up to 6,400 fluid ounces of water a day. How many gallons of water can an elephant drink per day?

$$6,400 \text{ fl oz} = \text{gallons}$$

$$6,400 \div (8 \times 2 \times 2 \times 4)$$

$$6,400 \div 128 \\ = 50 \text{ gallons}$$

Larger Unit	→	Smaller Unit
1 cup (c)	=	8 fluid ounces (fl oz)
1 pint (pt)	=	2 cups
1 quart (qt)	=	2 pints
1 gallon (gal)	=	4 quarts

8. A recipe for ice cream calls for 56 fluid ounces of milk. How many pints of milk are there in the recipe?

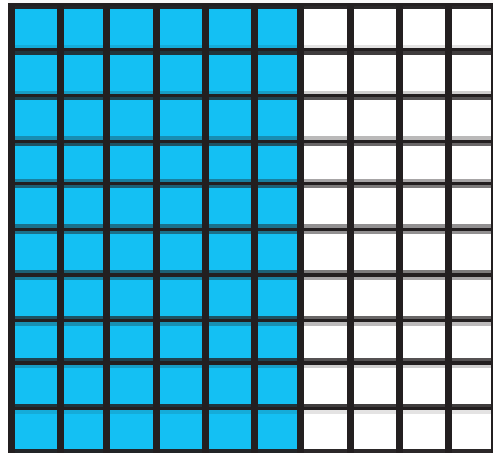
$$56 \text{ fl oz} = \text{pints}$$

$$56 \div (8 \times 2)$$

$$56 \div 16 \\ = 3.5 \text{ pints}$$

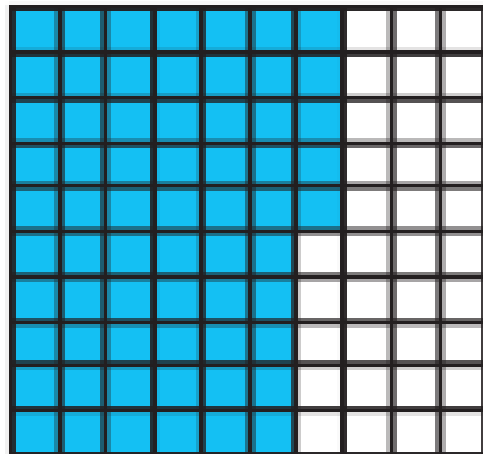
For Exercises 1 and 2, identify the percent represented by each 10 × 10 grid.

1.



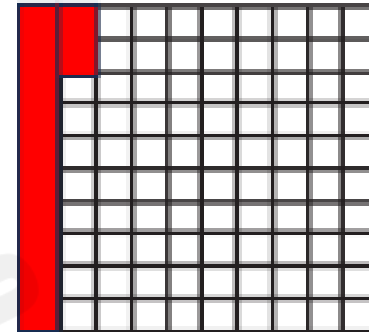
60%

2.

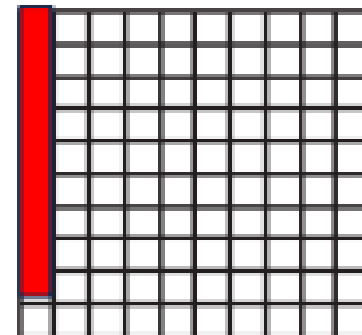


65%

3. In a school survey, 12% of the students surveyed said they like camping. Shade the 10 × 10 grid to model 12%.

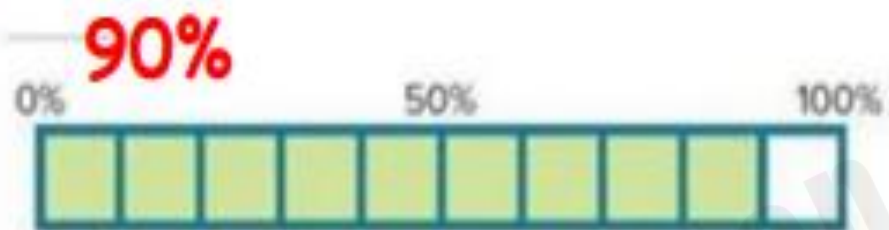


4. Of the students in the lunch line, 9% said they were buying strawberry milk. Shade the 10 × 10 grid to model 9%.

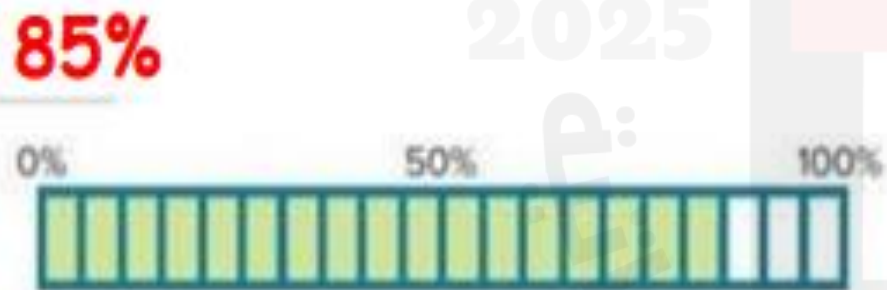


For Exercises 5 and 6, identify the percent represented by each bar diagram.

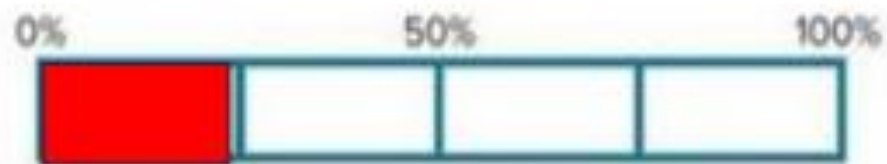
5.



6.



7. Shade the bar diagram to model 25%.



Write each percent as a fraction in simplest form and as decimal.

1. 45%

$$\frac{45}{100} \div 5 = \frac{9}{20}$$

0.45

2. 72%

$$\frac{72}{100} \div 4 = \frac{18}{25}$$

0.72

3. 80%

$$\frac{80}{100} \div 20 = \frac{4}{5}$$

0.80 or 0.8

Write each decimal as a percent and as a fraction in simplest form.

7. $0.89 = \frac{89}{100}$; 89%

8. $0.82 = \frac{82 \div 2}{100 \div 2} = \frac{41}{50}$; 82%

Write each fraction as a percent and as a decimal.

4. $\frac{3}{20} \times 5 = \frac{15}{100}$

15% ; 0.15

5. $1\frac{3}{4} \times 20 = \frac{75}{100}$

1.75% ; 1.75

6. $\frac{5}{8} \times 12.5 = \frac{62.5}{100}$

62.5% ; 0.625

9. $0.65 = \frac{65 \div 5}{100 \div 5} = \frac{13}{20}$; 65%

10. About 0.41 of Hawaii's total area is water. Write 0.41 as a fraction and as a percent.

$\frac{41}{100}$, 41%

12. There are 25 students in Muriel's class. Write a percent to represent the number of students that have brown eyes. Then write the percent as a fraction and as a decimal.

Eye Color	Number of Students
Blue	6
Brown	10
Green	7
Hazel	2

40%, $\frac{2}{5}$, 0.4

11. Over the course of the basketball season, Zane's free throw average went up by 30%. Write 30% as a fraction and as a decimal.

$\frac{3}{10}$, 0.3

Test Practice

13. **Multiselect** Which of the following are equivalent to 85%? Select all that apply.

0.85

$\frac{85}{100}$

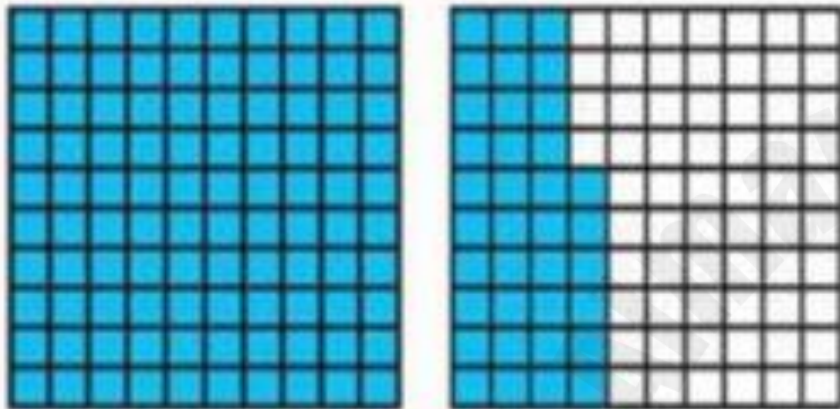
0.8

$\frac{17}{20}$

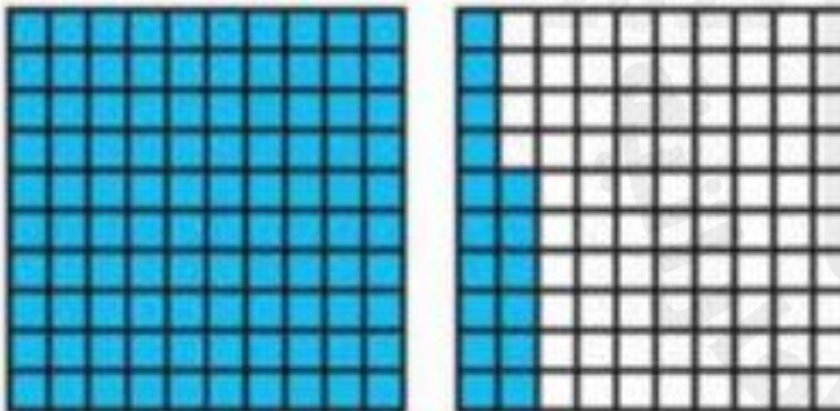
85

Identify the percent represented by the 10 x 10 grids.

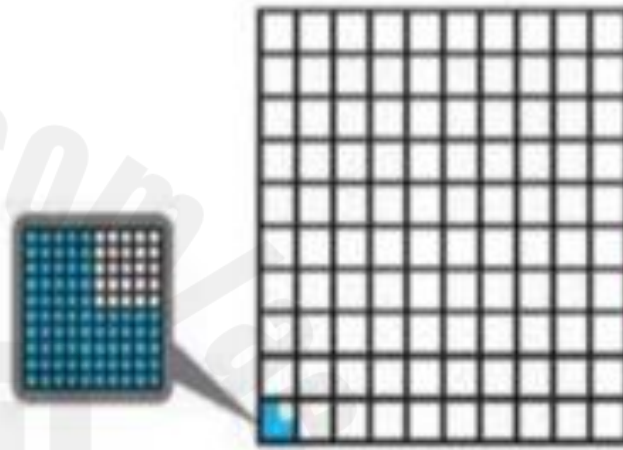
1.

**136%**

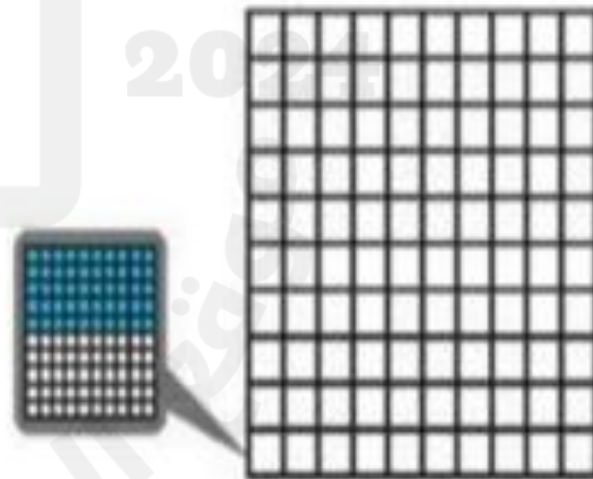
2.

**116%**

3.

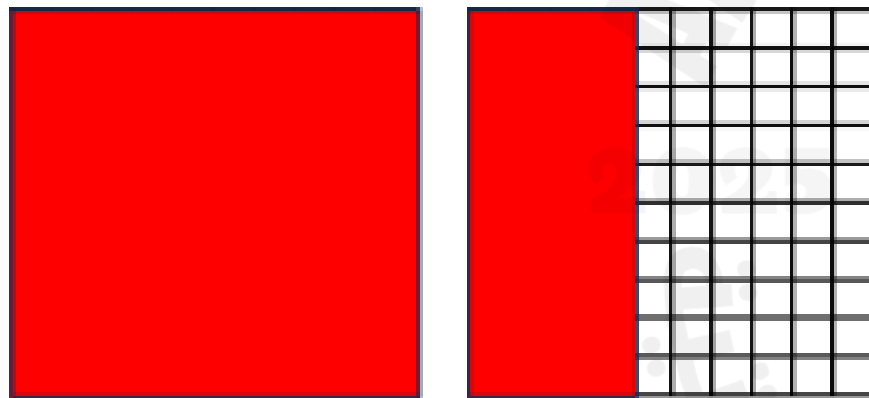
**0.75%**

4.

**0.50%**

5. The size of a large milkshake is 1.4 times the size of a medium milkshake. Write a percent that compares the size of the large milkshake to the size of the small milkshake. Then draw and shade 10x10 grids to model the percent.

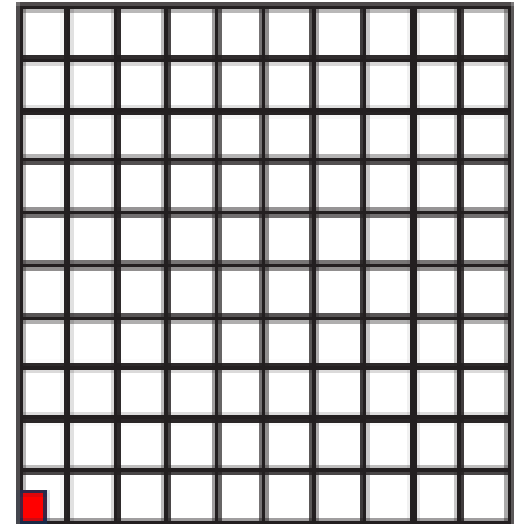
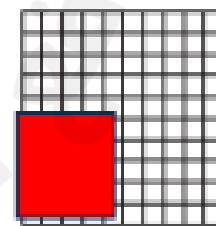
$$1.4 \times 100 = 140\%$$



6. The Freedom Tower is 1,776 feet tall. Mr. Feeman's students are building a replica of the tower for a class project that will stand 4.44 feet tall. Write a percent that compares the height of the replica to the height of the actual tower. Then shade the 10 x 10 grid to model the percent.

$$\frac{4.44}{1776} = \frac{1}{400}$$

$$\frac{1}{400} \times 100\% = \frac{1}{4}\% \text{ Or } 0.25\%$$



Use any strategy to solve each problem.

1. Yolanda’s club requires that 80% of the members be present for any vote. If at least 20 members must be present to have a vote, **how many members** does the club currently have?

$$\frac{80}{100} \Big/ \frac{20}{?}$$

$$\frac{100 \times 20}{80} = \frac{2000}{80} = 25 \text{ members}$$

2. Action movies make up 25% of Sara’s DVD collection. If she has 16 action DVDs, **how many DVDs** does Sara have in her collection?

$$\frac{25}{100} \Big/ \frac{16}{?}$$

$$\frac{100 \times 16}{25} = \frac{1600}{25} = 64 \text{ DVDs}$$

3. Marcus saved **\$10 because** he bought a baseball glove that was on sale for **40% off**.
What was the original price of the glove?

$$\frac{40}{100} \checkmark \frac{10}{?}$$

$$\frac{100 \times 10}{40} = \frac{1000}{40} = \$ 25$$

4. Of the students in the marching band, **55% plan** to go to the school dance. If there are **110 students** in the marching band that are going to the dance, **how many students are in the marching band?**

$$\frac{55}{100} \checkmark \frac{110}{?}$$

$$\frac{100 \times 110}{55} = \frac{1600}{25}$$

= 200 students

5. Melcher used 24% of the memory card on his digital camera while taking pictures at a family reunion. If Melcher took 96 pictures at the family reunion, **how many pictures can the memory card hold?**

$$\frac{24}{100} \checkmark \frac{96}{?}$$
$$\frac{100 \times 96}{24} = \frac{9600}{24} = 400 \text{ Pictures}$$

6. Mallorie has \$12 in her wallet. If this is 20% of her monthly allowance, **what is her monthly allowance?**

$$\frac{20}{100} \checkmark \frac{12}{?}$$
$$\frac{100 \times 12}{20} = \frac{1200 \checkmark}{20 \checkmark} = \$60$$

7. The table shows the number of minutes Tim has for lunch and study hall. He calculates that these two periods account for **18% of the minutes he spends at school**. **How many minutes does he spend at school?**

Period	Number of Minutes
Lunch	45
Study Hall	45

Lunch + Study Hall

$$45 + 45 = 90$$

$$\frac{18}{100} \times \frac{90}{?}$$

$$\frac{100 \times 90}{18} = \frac{9000}{18} = 500 \text{ minutes}$$

8. **Open Response** The number of sixth grade students accounts for **35%** of the total number of students enrolled in middle school. There are **245 sixth grade students**. **How many students are enrolled in the middle school?**

$$\begin{array}{r} \times \\ 245 \\ \hline W \end{array} \times \begin{array}{r} 35 \\ \hline 100 \end{array}$$

$$\frac{245 \times 100}{35} = \frac{24500}{35}$$

$$= 700 \text{ students}$$

Find the reciprocal of each number (Example 1 and Example 3)

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

2. $\frac{1}{5}$ $\frac{5}{1} = 5$

3. 8 $\frac{1}{8}$

4. What number multiplied by $\frac{3}{5}$ has a product of 1? (Example 2)

$$\frac{3}{5} \times \frac{5}{3} = \frac{15}{15} = 1$$

$$\frac{5}{3}$$

5. What number multiplied by $\frac{7}{10}$ has a product of 1? (Example 2)

$$\frac{7}{10} \times \frac{10}{7} = \frac{70}{70} = 1$$

$$\frac{10}{7}$$

Divide. Write in simplest form. (Example 4)

6. $3 \div \frac{1}{4} =$ _____

$$\frac{3}{1} \times \frac{4}{1} = \frac{12}{1} = 12$$

7. $4 \div \frac{2}{5} =$ _____

$$\frac{4}{1} \times \frac{5}{2} = \frac{20}{2} = 10$$

8. $6 \div \frac{2}{3} =$ _____

$$\frac{6}{1} \times \frac{3}{2} = \frac{18}{2} = 9$$

9. Marie is making scarves. She has 7 yards of fabric and each scarf needs $\frac{5}{8}$ yard of fabric. Find $7 \div \frac{5}{8}$. Then interpret the quotient. (Example 5)

$$\frac{7}{1} \times \frac{8}{5} = \frac{56}{5} = 11\frac{1}{5}$$

$11\frac{1}{5}$; Marie can make $11\frac{1}{5}$ scarves or 11 whole scarves.

10. Roberto is at a tennis day camp. The coach has set aside 2 hours to play mini matches that last $\frac{3}{5}$ hour. Find $2 \div \frac{3}{5}$. Then interpret the quotient.

$$\frac{2}{1} \times \frac{5}{3} = \frac{10}{3} = 3\frac{1}{3}$$

$3\frac{1}{3}$; Roberto will get to play $3\frac{1}{3}$ mini matches.

17 Apply prior knowledge about multiplication and division with whole numbers and the division of whole numbers by fractions to divide fractions by fractions.

8-13

Page:176

- *8. A teacher is making bags of different colors of modeling clay. The table shows the amount of each color she has available. Each color will be divided into $\frac{3}{16}$ -pound bags. How many more bags of purple can she make than yellow?

1 more bag

- *9. Mateo is making bookmarks with different colored ribbon. The amount of each color he has is shown in the table. Each bookmark will be $\frac{1}{6}$ -yard long. How many more orange bookmarks can he make than aqua bookmarks?

1 more bookmark

Color Weight (lb)	
Green	$\frac{1}{2}$
Purple	$\frac{15}{16}$
Red	$\frac{2}{3}$
Yellow	$\frac{3}{4}$

Color Length (yd)	
Aqua	$\frac{3}{4}$
Orange	$\frac{9}{10}$
Yellow	$\frac{15}{16}$

10. **MP Make a Conjecture** Can the quotient of two positive fractions be less than 1? Explain.

yes; Sample answer: When the dividend is less than the divisor, the quotient is less than 1. For example, $\frac{1}{2}$ is less than $\frac{3}{5}$.
So, $\frac{1}{2} \div \frac{3}{5} = \frac{1}{2} \times \frac{5}{3} = \frac{5}{6}$ and $\frac{5}{6} < 1$.

12. **MP Persevere with Problems** Lannie has $5\frac{1}{2}$ cups of chocolate chips. She needs $1\frac{3}{4}$ cups to make one batch of chocolate chip cookies. How many batches of chocolate chip cookies can she make?

3 batches

11. The length of a race is $\frac{9}{10}$ mile. Andrew wants to place a flag every $\frac{1}{3}$ mile. He has 3 flags. Does he have enough flags? Explain.

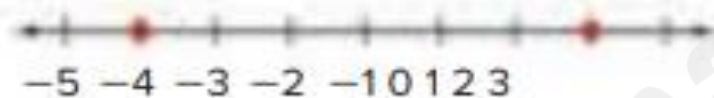
yes; Sample answer: $\frac{9}{10} \div \frac{1}{3} = \frac{9}{10} \times \frac{3}{1} = \frac{27}{10} = 2\frac{7}{10}$. He only needs 2 flags. So, he has enough.

13. Write a division problem involving the division of two positive fractions whose quotient is equal to 1. Show that your problem is correct.

Sample answer: $\frac{7}{8} \div \frac{7}{8} = \frac{7}{8} \times \frac{8}{7} = \frac{56}{56} = 1$

- *15. Rodney is performing a science experiment. The table shows the temperature of two liquids he is using. Graph the integers that represent the temperatures on a number line. Which beaker's liquid is closer to 0°C ? Explain.

Beaker	Temperature
A	-4°C
B	2°C



Beaker B; Sample answer: Beaker B is 2 units away from 0 on the number line, while Beaker A is 4 units from 0 on the number line. $4 > 2$

- *16. Sydney owes her mother \$5 and her brother owes her mother \$7. Graph the integers that represent the amount they owe their mother as a negative integer on a number line. How much more will her brother have to repay their mother than Sydney? Explain.



\$2; Sample answer: Sydney's debt is 5 units from 0. Her brother's debt is 7 units from 0. This is 2 more units. So, he will have to pay \$2 more.

- 17. MP Use Math Tools** Explain how to find the distance between 1 and -3 on a number line.

Sample answer: Graph 1 and -3 on a number line. Then count the units between each integer and zero. There is 1 unit between 0 and 1. There are 3 units between 0 and -3 . So, 1 unit + 3 units = 4 units.

- 19. Create** Describe a real-world situation that can be represented by a negative integer. Then write the integer.

Sample answer: Riley lost 10 points playing a trivia game; -10

- 18.** At midnight, the outside temperature was 0°F .

- a. By 6:00 A.M., the temperature had dropped 4°F , and then the temperature raised 10°F by noon. What is the temperature at noon?

6°F

- b. What represents zero in this situation? Explain.

Sample answer: Zero represents 0°F .

- 20. MP Justify Conclusions** Craig has \$28 in his checking account. He wants to make a withdrawal of \$30. Will his checking account balance be represented by a positive or negative integer after the withdrawal? Justify your conclusion.

negative; Sample answer: A withdrawal of \$28 would result in a balance of \$0. Since the withdrawal of \$30 is greater than \$28, the balance will be less than zero and would be represented with a negative integer.

Find the opposite of each integer(Example 1)

1. -3 **3**

2. 2 **-2**

3. 6 **-6**

4. Chad is planting a plant that is 4 inches tall. He wants the hole he is digging to be as deep as the plant is tall. What integer represents the location of the bottom of the hole? How does this compare to the height of the plant? (Example 2)

-4 ; Sample answer: This is the opposite of the height of the plant.

5. A hill on a dirt bike course is 5 feet tall. The valley below the hill is as deep as the hill is tall. What integer represents the location of the bottom of the valley? How does this compare to the height of the hill? (Example 2)

-5 ; Sample answer: This is the opposite of the height of the hill.

Find each value. (Examples 2 and 3)

6. $-(-15) =$ 15

7. $-(-11) =$ 11

8. $-[-(-7)] =$ -7

9. $-[-(-1)] =$ -1

10. $-[-(-55)] =$ 55

11. $-[-(-100)] =$ 100

12. A mountain climber started at sea level and descended down a cliff. Her location can be represented by -75 feet. How many feet did the mountain climber travel?

(Example 4)

75 feet

13. The temperature was -5°F when Tiffany woke up in the morning. By noon, the temperature was 0°F . How many degrees did the temperature change? (Example 4)

5 degrees

14. Multiselect Which of the following represent opposites?

-4 and 4

-1 and 1

-2 and -1

0 and 1

-7 and -8

10 and -10

1. After playing 18 holes of golf, John's score was -4 and Terry's score was -1 . Write an inequality to compare the scores. Then explain the meaning of the inequality.

(Example 1)

$-4 < -1$; Since $-4 < -1$, John has a lesser score than Terry.

2. The record low temperature for Buffalo, New York is -20°F . The record low temperature for Chicago, Illinois is -27°F . Write an inequality to compare the record low temperatures. Then explain the meaning of the inequality. (Example 1)

$-27 < -20$; Chicago's record low temperature is farther away from 0, so it is colder than Buffalo's record low temperature.

3. The table shows the freezing points for gases. Order the gases from least to greatest according to their freezing points. (Example 2)

Gas	Freezing Points ($^{\circ}\text{C}$)
Argon	-189
Carbon Monoxide	-205
Ethane	-297
Helium	-272
Oxygen	-219
Sulfur Dioxide	-72

ethane, helium, oxygen, carbon monoxide, argon, sulfur dioxide

4. The table shows the scores for players in a trivia game after the first round. Order the players from least to greatest according to their scores. (Example 2)

Player	Score
Ace	-11
Diana	3
Jace	-3
Oneida	-7
Nolan	5
Rachel	1

Ace, Oneida, Jace, Rachel, Diana, Nolan

5. Explain why an elevation less than -5 feet represents a distance from sea level greater than 5 feet. (Example 3)

Sample answer: An elevation less than -5 feet is -10 feet. This means the distance is 10 feet from sea level, which is greater than a distance of 5 feet from sea level.

6. Explain why a balance of less than $-\$10$ represents a debt greater than $\$10$. (Example 3)

Sample answer: A balance less than $-\$10$ is $-\$15$, which means a debt of $\$15$. This is greater than a debt of $\$10$.

7. In a golf match, Jesse scored 5 over par, Neil scored 3 under par, Felipe scored 2 over par, and Dawson scored an even par. Order the players from least to greatest score.

Neil, Dawson, Felipe, Jesse

Test Practice

8. **Table Item** Order the integers from least to greatest.

9, -8 , -2 , 4, -9

least

greatest

-9	-8	-2	4	9
------	------	------	---	---

Identify the quadrant in which each point is located.

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

Quadrant III

2. $\left(5\frac{3}{4}, -6\frac{1}{5}\right)$

Quadrant IV

3. $\left(\frac{4}{5}, 3\frac{3}{4}\right)$

Quadrant I

4. $\left(-3\frac{1}{2}, 2\frac{4}{5}\right)$

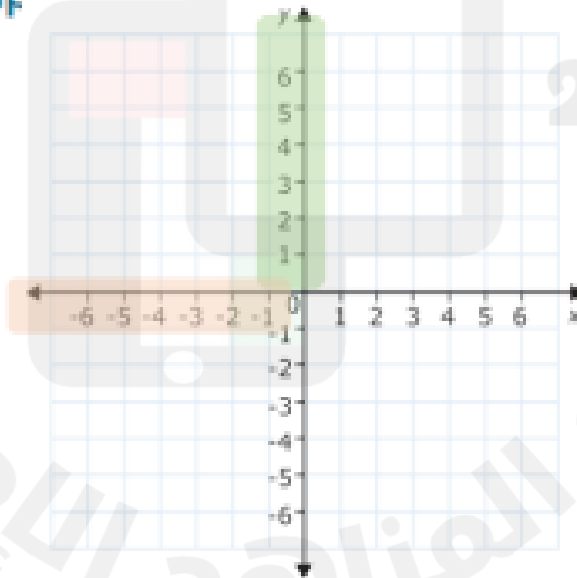
Quadrant II

5. Identify the axis on which the point $\left(-\frac{2}{3}, 0\right)$ is located. (Example 2)

x-axis

6. Identify the axis on which the point $\left(0, 6\frac{3}{5}\right)$ is located. (Example 2)

y-axis

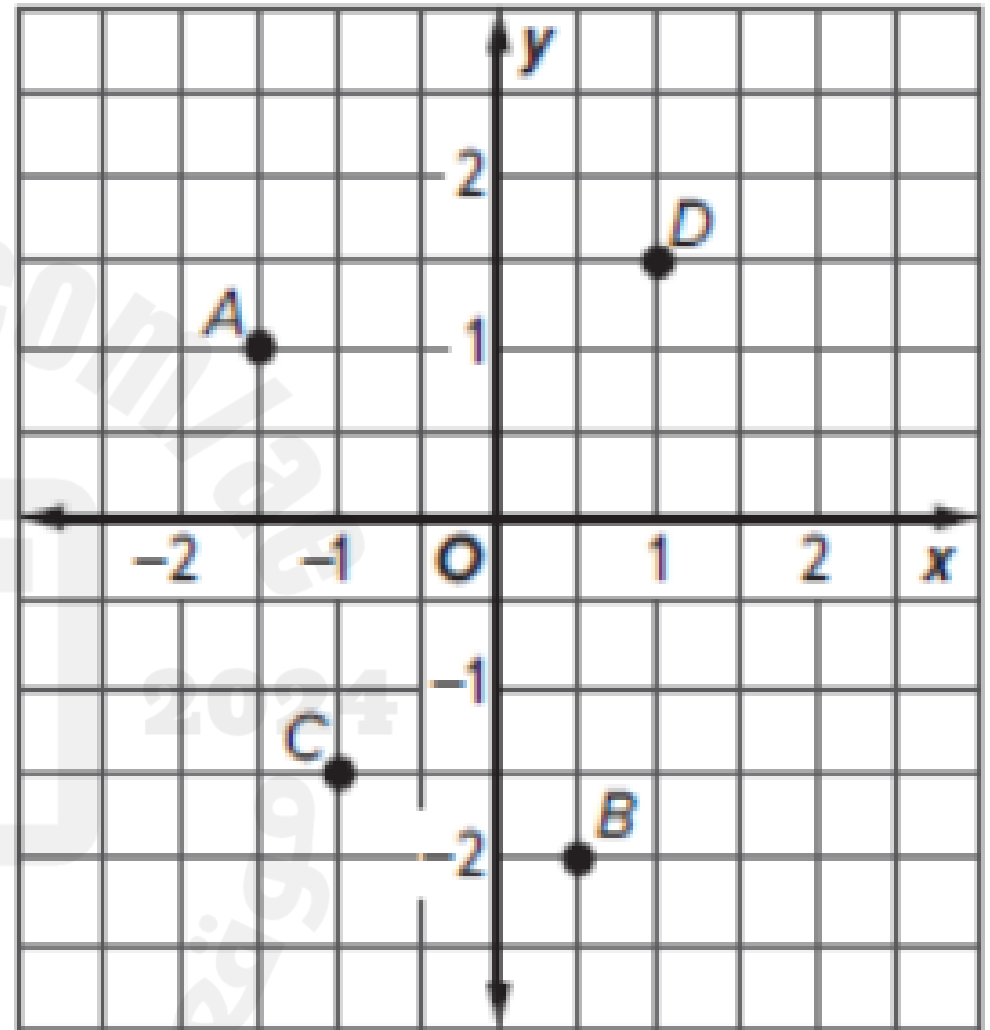


Use the coordinate plane. Identify the ordered pair that names each point.

7. A $(-1\frac{1}{2}, 1)$

8. B $(\frac{1}{2}, -2)$

9. C $(-1, -1\frac{1}{2})$

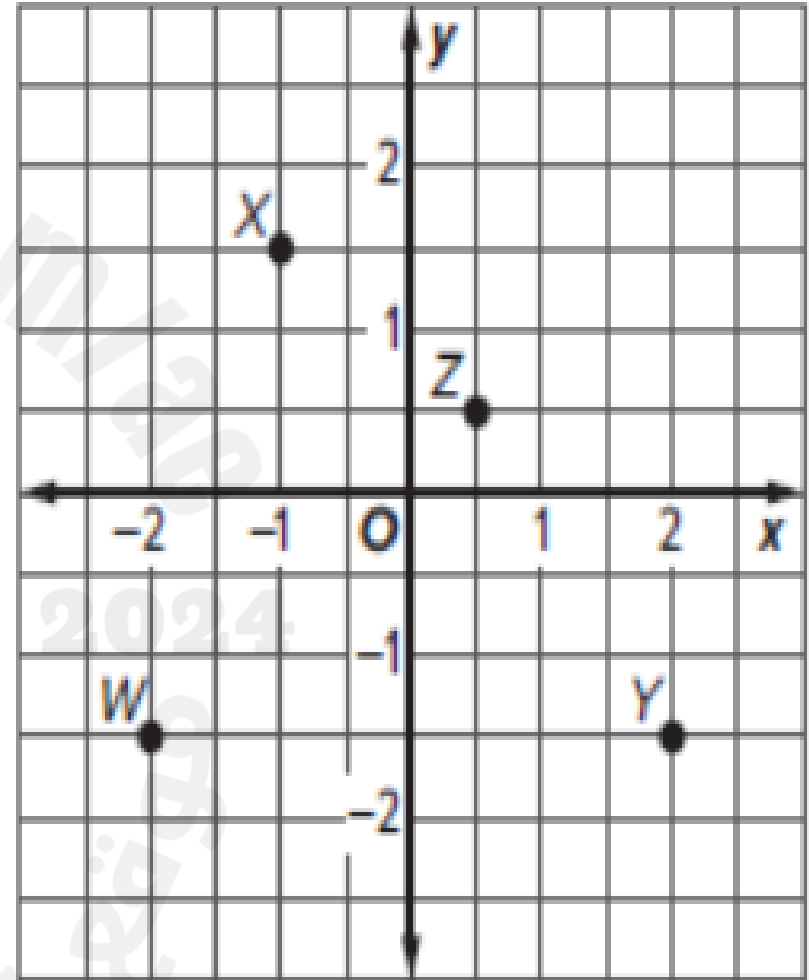


Use the coordinate plane. Identify the point for each ordered pair.

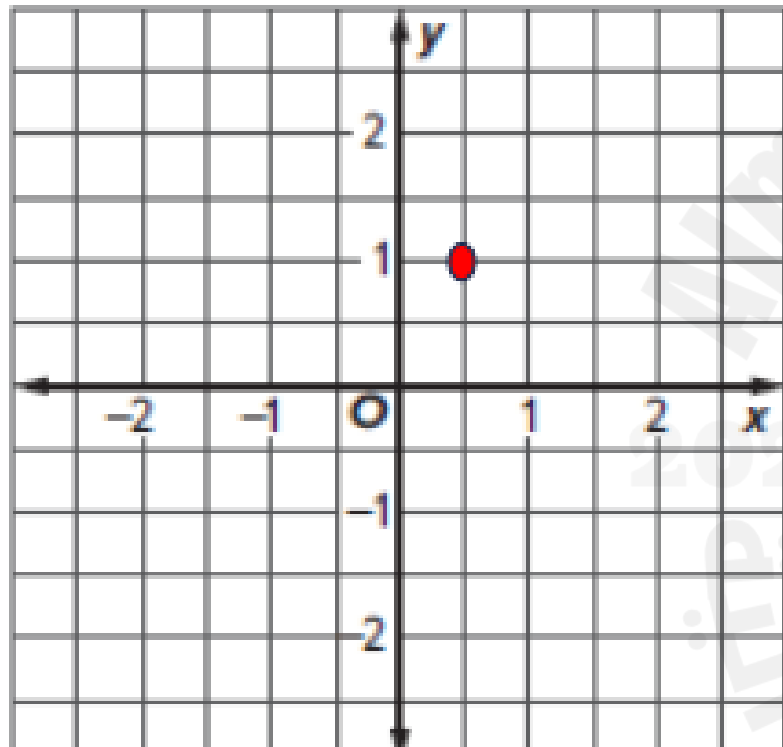
10. $\left(\frac{1}{2}, \frac{1}{2}\right)$ (+, +) Z

11. $\left(-1, 1\frac{1}{2}\right)$ (-, +) X

12. $\left(-2, -1\frac{1}{2}\right)$ (-, -) W



13. Graph $A\left(\frac{1}{2}, 1\right)$



14. Graph $X\left(-1\frac{1}{2}, 2\right)$

