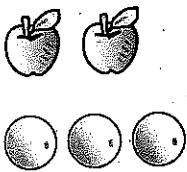


# Ratio and Proportion

## Modeled Instruction

**DIRECTIONS:** Read each question and choose the best answer. Use the answer sheet provided at the end of the workbook to record your answers. If the correct answer is not available, mark the letter for "Not Here."

1. For every 2 apples in a fruit basket, there are 3 oranges. What is the ratio of apples to oranges?



- A 3 to 2                      C 2 to 5  
B 2 to 3                      D 3 to 5



### Hint

You can make a model to show a ratio. The language indicates, "2 to 3" is the ratio of apples to oranges; "3 to 2" is the ratio of oranges to apples.

2. Mr. Johnson planted 1 purple tulip for every 4 yellow tulips. How many yellow tulips will he plant if he plants 5 purple tulips?

- F 20 tulips                      H 6 tulips  
G 25 tulips                      J 5 tulips

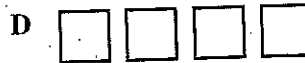
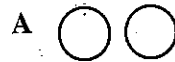


### Hint

You can model this ratio with a table.

Purple tulips	1	2	3	4	5
Yellow tulips	4	8	12	16	□

3. Which model shows the ratio of 2 circles to 4 squares?



### Hint

The order in which the ratio is presented is "2 to 4." Look for that order in the models.

Name \_\_\_\_\_ Date \_\_\_\_\_

50. The number of minutes Josh runs each day for 6 days are 26, 38, 33, 20, 3, and 28. What is the outlier in the data set?

F 38

G 27

H 25

J 3

4. Ting is making a necklace that has 5 white beads for every 1 gold bead. Which number completes the table to show the number of white beads for 10 gold beads?

White Beads	5	10	15	20	25	30	35	40	45	<input type="checkbox"/>
Gold Beads	1	2	3	4	5	6	7	8	9	10

F 47

G 48

H 49

J 50



**Hint**

Look for a pattern in the table. While the bottom row of the table increases by 1, the top row of the table increases by 5.

5. Which of the following is a unit ratio?

A the ratio of peanuts to cashews is 12 to 4

B 4 cups of water for every 2 cups of rice

C 3 daisies for each rose

D 3 out of every 6 apples are green



**Hint**

A unit rate or unit ratio is a comparison where one of the numbers is 1. Look for language such as "for each" or "per."

6. In every classroom in Jackson Middle School, there are 2 closets. How many closets are in 4 classrooms?

F 2 closets

G 4 closets

H 6 closets

J 8 closets



### Hint

You can write a ratio as a fraction.

$$\frac{1 \text{ classroom}}{2 \text{ closets}}$$

Then multiply the numerator and denominator by the same number to show 4 classrooms.

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

7. Henry paid \$2.52 for 12 ounces of crackers. What is the unit rate?

A  $\frac{\$0.21}{1 \text{ ounce}}$

B  $\frac{\$2.52}{12 \text{ ounces}}$

C  $\frac{\$4.76}{1 \text{ ounce}}$

D  $\frac{\$30.24}{12 \text{ ounces}}$



### Hint

Unit rate means how much Henry paid for 1 ounce. You can divide to find an equivalent ratio.

$$\frac{\$2.52}{12} \div \frac{12}{12} = \square$$

Divide 12 ounces by 12 to get to 1 ounce.  
You divide \$2.52 by 12 to find the unit price.

8. A recipe calls for 3 teaspoons of rice vinegar to 4 teaspoons of honey. Based on this information, which of the following statements is true?

F The recipe has a ratio of  $\frac{3}{4}$  teaspoon of vinegar to  $\frac{3}{4}$  teaspoon of honey.

G The recipe has a ratio of 1 teaspoon of vinegar to each teaspoon of honey.

H The recipe has a ratio of  $\frac{3}{4}$  teaspoon of honey to each teaspoon of vinegar.

J The recipe has a ratio of  $\frac{3}{4}$  teaspoon of vinegar to each teaspoon of honey.



### Hint

You can find the unit rate by writing the ratio as a fraction.  $\frac{3 \text{ teaspoons rice vinegar}}{4 \text{ teaspoons honey}}$

Dividing the numerator and denominator by 4 results in an equivalent fraction with a denominator of 1.

9. This table shows equivalent ratios for granola bars that are packed at the factory. What is the unit rate in this table?

Bars	10	20	30	40
Boxes	1	2	3	4

- A  $\frac{40 \text{ bars}}{4 \text{ boxes}}$   
 B  $\frac{30 \text{ bars}}{3 \text{ boxes}}$   
 C  $\frac{20 \text{ bars}}{2 \text{ boxes}}$   
 D  $\frac{10 \text{ bars}}{1 \text{ box}}$



Hint

A unit rate always has 1 as a part of the ratio.

10. Dylan hikes 90 miles in 3 days. At that rate, how many days does it take him to hike a total of 240 miles?

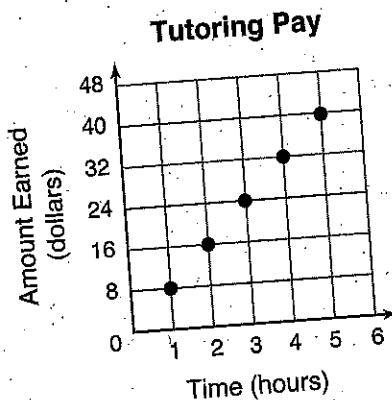
- F 8 days  
 G 12 days  
 H 15 days  
 J 19 days



Hint

Start by writing the ratio as a fraction. Then set up a proportion.

11. The graph shows the amount of money Juanita earns from her tutoring job. How much does Juanita earn for 5 hours of tutoring?



- A \$40.00  
 B \$32.00  
 C \$16.00  
 D \$8.00



Hint

Look for the point on the graph where the number 5 on the x-axis intersects the y-axis.

Use the table to answer questions 12 and 13.

Ounces	Dollars
1	4
2	8
3	12
4	16
5	20

12. What unit rate does this table represent?

F 4 dollars per ounce

G 1 dollar per ounce

H 4 ounces per dollar

J 1 ounce per dollar

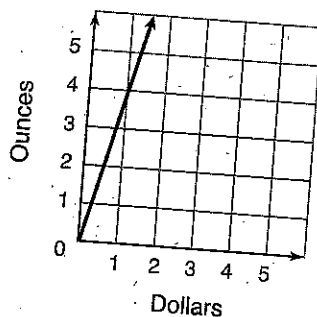


**Hint**

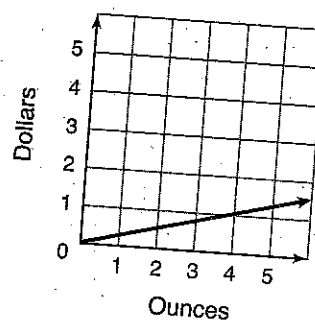
Find two numbers in the table where one of the numbers is a 1. 1 ounce for 4 dollars can be turned around. The word "per" means for each.

13. Which graph below represents the rate table above?

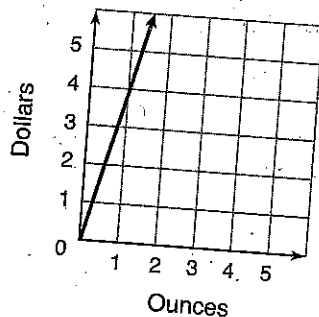
A



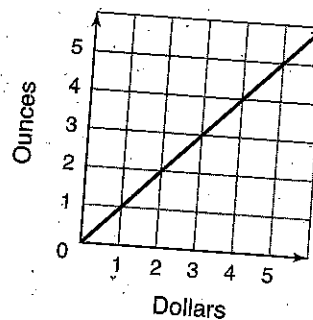
C



B



D



**Hint**

Ounces is the independent variable because the more ounces you buy the greater the cost will be. The cost is dependent on the number of ounces, so ounces are on the  $x$ -axis and dollars are on the  $y$ -axis. Look for a section of the line that intersects with 1 and 4.

14. If 5 bags of apples weigh 40 pounds, how many pounds do 2 bags of apples weigh?

F 7 pounds  
G 10 pounds  
H 16 pounds  
J 70 pounds

**Hint**

You can use a tape diagram to figure out the weight of 1 bag. Each bag weighs 8 lb because  $5 \times 8 = 40$ .

8 lb	8 lb	8 lb	8 lb	8 lb
------	------	------	------	------

Jake collects 12 new coins each year. Use this table to decide how many coins Jake will have after 5 years.

Coins	12	24	36	48	<input type="checkbox"/>
Year	1	2	3	4	5

A 49 coins  
B 50 coins  
C 60 coins  
D 108 coins

**Hint**

You can see that the number of coins increases at a constant rate. Look for a pattern to see what the number of coins will be in the fifth year.

16. A 12-ounce box of Wheat-Os costs \$4.08. What is the unit price per ounce?

F  $\frac{\$0.34}{1 \text{ oz}}$

G  $\frac{12 \text{ oz}}{1 \text{ oz}}$

H  $\frac{\$4.08}{12 \text{ oz}}$

J Not Here

**Hint**

The unit price for this problem is "per ounce." Write the ratio  $\frac{\$4.08}{12 \text{ oz}}$  as a fraction. Divide the numerator and denominator by the same number to determine the unit price.

17. A sprinting cheetah covered a distance of 518 meters in 18.5 seconds. How fast was the cheetah running?

A 30 meters per second  
B 28 meters per second  
C 25 meters per second  
D 22 meters per second

**Hint**

Simplify the problem to find a solution path. If the cheetah sprinted 10 meters in 2 seconds, you could divide 10 by 2 to see that it would sprint 5 meters in 1 second. Use a similar procedure with the numbers 518 meters and 18.5 seconds.

18. What value completes the ratio table?

Recipe	
50 grams	3 eggs
25 grams	<input type="text"/>

F  $1\frac{1}{2}$  eggs

G 6 eggs

H 5 eggs

J 4 eggs



**Hint**

You need to write an equivalent ratio for this problem.  $\frac{50}{3} = \frac{25}{\square}$

By what number do you divide 50 to get a result of 25? Divide 3 by that same number.

19. Hirva earned \$60.00. She put 50% in a savings account. How much did she save?

A \$10.00

B \$25.00

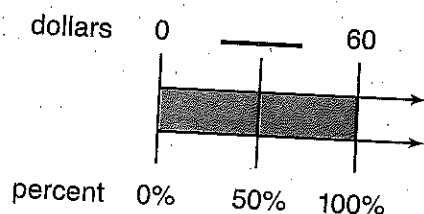
C \$30.00

D \$50.00



**Hint**

You can use a double number line to represent the situation.



What number is halfway between 0 and 60?

20. The sixth graders at Jamal's school voted for the location of their class trip. The table shows the results. If 126 students voted for going to the art museum, how many sixth graders are at Jamal's school?

Class Trip Votes	
Location	Percent
History museum	25%
Art museum	35%
Aquarium	40%

F 161 students

G 315 students

H 360 students

J 504 students



**Hint**

You can use percent notation in a ratio. Since all the percents are a multiple of 5, use 5% as the ratio unit.  $\frac{126}{35\%} = \frac{\square}{5\%}$  This will give you the number of students in 5%. Once you know how many students are in 5%, you can multiply by 20 to find the total number of students.

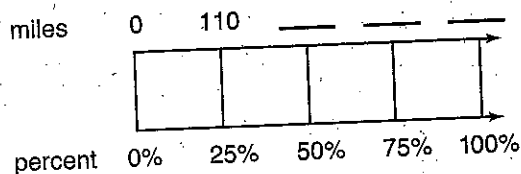


21. A train is traveling from Orlando, Florida to Atlanta, Georgia. So far, it has traveled 25% of the distance, or 110 miles. How far is the train ride from Orlando to Atlanta?

A 247 miles  
 B 255 miles  
 C 405 miles  
 D 440 miles

**Hint**

You can use double number lines for distance problems.



How could you find the number of miles in the last 3 equal parts of the diagram?

Once you know the number of miles for one section, you can find the total number of miles.

22. A bottle contains 3.5 liters of water. A second bottle contains 3,750 milliliters of water. How many more milliliters are in the larger bottle than in the smaller bottle?

F 3,500 mL  
 G 3,400 mL  
 H 250 mL  
 J Not Here

**Hint**

You need to subtract like units of measure, so first you need to change liters to milliliters. There are 1,000 milliliters in 1 liter. So, you can multiply  $3.5 \times 1,000$  before you subtract.

23. Green peppers are on sale for \$1.80 per pound. How much would 2.5 pounds of green peppers cost?

A \$450.00  
 B \$4.50  
 C \$3.60  
 D \$2.80

**Hint**

The answer needs to be in dollars, so set up the multiplication problem so that pounds will be eliminated.

$$\frac{\$1.80}{1 \text{ lb}} \times 2.5 \text{ lb} = \frac{\$1.80}{1 \text{ lb}} \times \frac{2.5 \text{ lb}}{1} =$$

24. A car travels 32 miles for each gallon of gas. How many gallons of gas does it need to travel 192 miles?

F 2 gallons  
G 4 gallons  
H 5 gallons  
J 6 gallons



**Hint**

You can set up a proportion to solve this problem.

$$\frac{\text{miles}}{\text{gallons}} = \frac{\text{miles}}{\text{gallons}}$$

$$\frac{32 \text{ miles}}{1 \text{ gallon}} = \frac{192 \text{ miles}}{n}$$

Now solve the proportion.

25. A downhill skier is traveling at a rate of 0.5 kilometer per minute. How far will the skier travel in 18 minutes?

A 9 kilometers  
B 18 kilometers  
C 32 kilometers  
D 36 kilometers



**Hint**

You can use the distance formula to solve this problem.

$$d = r \times t$$

$$d = \frac{0.5 \text{ mi}}{1 \text{ min}} \times 18 \text{ min}$$

$$d = \square$$