Ratios

Name: _____

Prerequisite: Relating Patterns

Study the example showing how to describe the relationship between two patterns. Then solve problems 1–6.

Example

The school store sells headbands for $2 each and T-shirts for $8 each. Write ordered pairs to compare the cost of headbands to T-shirts for 0, 1, 2, 3, 4, and 5 of each item.

Use a table to show the two numerical patterns.

Cost of Headbands ($)	Cost of T-shirts ($)	Ordered Pairs
0	0	(0, 0)
2	8	(2, 8)
4	16	(4, 16)
6	24	(6, 24)
8	32	(8, 32)
10	40	(10, 40)

The cost of headbands follows the rule "add 2."

0, 2, 4, 6, 8, 10

The cost of T-shirts follows the rule "add 8."

0, 8, 16, 24, 32, 40

Then write the corresponding terms as ordered pairs.

1 Use the rule "add 8" to find the cost of 6 T-shirts. Explain how you found your answer.

_____

_____

_____

_____

2 For each ordered pair in the table, how does the second number compare to the first number?

_____

3 If the cost of headbands is $20, what is the corresponding cost for T-shirts? _____

Vocabulary

corresponding terms numbers that are in the same place in two or more related patterns.

ordered pair a pair of numbers that locate a point on a coordinate plane.

Solve.

4 One pattern starts at 0 and follows the rule "add 2." Another pattern starts at 0 and follows the rule "add 5." Write the first 6 numbers in each pattern. How do the terms in the first pattern compare to the corresponding terms in the second pattern?

Show your work.

Solution: _____

5 Complete the table below. Then describe the relationship between corresponding terms.

x	*y*	Ordered pairs (*x*, *y*)
0	0	
6	3	
12	6	

6 A shop sells matching hats and scarves. The scarves cost 1.5 times as much as the hats. Write two patterns that could represent the costs of 1, 2, 3, 4, and 5 hats and scarves. List the first 5 terms of each pattern. Then explain how to find the cost of 6 hats and scarves, using the patterns you wrote.

Show your work.

Solution: _____

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Compare Quantities Using Ratios

Study the example problem showing how to compare quantities using ratios. Then solve problems 1–8.

Example

A florist makes a bouquet using 4 roses, 5 carnations, and 3 daffodils. What is the ratio of roses to the total number of flowers in the bouquet?

Roses Carnations Daffodils

There are 4 roses in the bouquet.

The total number of flowers is $4 + 5 + 3 = 12$.

There are 12 flowers in the bouquet.

You can express the ratio "4 roses to 12 total flowers" as $\frac{4}{12}$, 4 : 12, or 4 to 12.

1 Write the ratio of carnations to daffodils in three different ways.

_____

2 What is the ratio of the total number of flowers to carnations? Write the ratio in three different ways.

_____

3 Describe a ratio in words about the flowers that compares one part of the bouquet to another part. Write the ratio in at least two different ways.

_____

_____

Solve.

Ben has a collection of 15 coins in quarters and dimes. There are 7 quarters in the collection.

4 Write the ratio of quarters to dimes in at least two different ways.

5 Write the ratio of dimes to total number of coins in at least two different ways.

6 Describe a ratio in words about the coins that compares the whole coin collection to one part of it. Then write the ratio in at least two different ways.

7 Is the ratio of quarters to dimes the same as the ratio of dimes to quarters? Explain.

8 Pradip and Pam each have a plate of apple slices and orange slices. The ratio of apple slices to the total number of slices on Pradip's plate is 4 to 11. The ratio of the total number of slices to orange slices on Pam's plate is 13 : 6. Neither person has more than 20 total slices. Who has more orange slices? Explain.

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Ratios

Solve the problems.

1 Alicia has pencils and markers as shown in the tape diagram. Write the ratio of markers to pencils in three different ways.

Pencils

Markers

_____

Be sure the terms in each ratio are in the correct order.

2 Kenny has 2 red marbles, 3 blue marbles, and 4 black marbles. Which ratio compares a part to the whole?

A 2 to 7

B 3 : 9

C 5 to 4

D 9 : 5

The whole in this problem is the total of the red, blue, and black marbles.

3 Mrs. Adams buys 4 bananas and 6 apples. Tell whether each statement is *True* or *False*.

a. The ratio of bananas to apples is 6 : 4. ☐ True ☐ False

b. The ratio of apples to total fruit is 10 to 6. ☐ True ☐ False

c. The ratio of bananas to total fruit is 4 to 10. ☐ True ☐ False

d. The ratio of total fruit to apples is $\frac{6}{10}$. ☐ True ☐ False

Does the ratio compare part to part or part to whole?

Solve.

4 For his exercise last weekend, Benito walked 5 miles and jogged 2 miles. What is the ratio of the miles walked to the total number of miles of exercise?

A 5 to 2

B 2 : 7

C 5 : 7

D 7 to 5

Elsa chose **A** as the correct answer. How did she get that answer?

5 The ratio of boys to girls in Mr. Smith's class is 3 : 2. Which statement is correct? Circle all that apply.

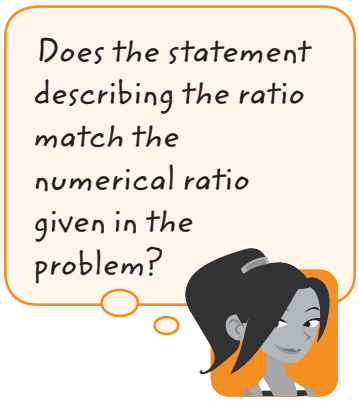
A For every 3 boys, there are 2 girls.

B For every 2 boys, there are 3 girls.

C There are exactly 5 students in Mr. Smith's class.

D The ratio of the number of boys in the class to the total number of students is 3 : 5.

E The ratio of the number of students in the class to the number of girls is 5 to 2.



6 Kelly buys a hat and gloves. The price of the hat is 4 times as much as the gloves. The hat costs $8. What is the ratio of the cost of the gloves to the total cost for both items?

Show your work.

Solution: _____