Ratio Match Lab

Compare quantities, name the relationship, and build equivalent ratios.

6.PFA.1 · The student will use ratios to represent relationships between quantities, including those in context. Represent a relationship between two quantities using ratios. Represent a relationship in context that makes a comparison by using the notations a/b, a:b, and a to b. Represent different comparisons within the same quantity or between different quantities (e.g., part to part, part to whole, whole to whole). Create a relationship in words for a given ratio expressed symbolically. Create a table of equivalent ratios to represent a proportional relationship between two quantities, when given a ratio. Create a table of equivalent ratios to represent a proportional relationship between two quantities, when given a contextual situation.

Name _____ Date _____

RATIOS SHOW COMPARISONS

A ratio compares two quantities in a stated order. You can write a ratio as a:b, a to b, or a/b. To make an equivalent ratio, multiply or divide both parts by the same number other than 0.

Worked example

An art cart has 11 paintbrushes and 17 markers. Write the ratio of paintbrushes to markers in all three forms.

1. The first quantity is 11 paintbrushes.
2. The second quantity is 17 markers.
3. Write the quantities in the order paintbrushes to markers.
4. Use each ratio form.

11:17, 11 to 17, 11/17

1. Practice

A class has 5 laptops and 7 tablets. Write the ratio of laptops to tablets as a:b.

2. Practice

A bag contains 3 yellow counters and 13 green counters. Write the ratio of yellow counters to all counters.

3. Practice

The ratio of fiction books to nonfiction books is 4:9. Write a sentence that describes this relationship.

4. Practice

The ratio of sketchbooks to markers is 2:5. Complete the table.

Sketchbooks	Markers
2	5
	15
8	

5. Practice

A reading challenge has 15 mystery books and 25 science fiction books. Write the ratio of mystery books to all books in these three forms. Use the actual counts and do not simplify: a:b, a to b, and a/b.

6. Practice

Library A buys 28 graphic novels. Library B buys 35 graphic novels. Write the ratio of Library A's new graphic novels to Library B's new graphic novels in simplest form.

7. Apply

A club packs black and white wristbands in a ratio of 3:5. Create a table with rows for 3, 9, 15 and 18 black wristbands. Use your table to find the counts in a 40-wristband pack.

Black wristbands	White wristbands

8. Apply

The photography club displays 24 landscape photos and 16 portrait photos. Write the ratio of landscape photos to portrait photos in simplest form. Then write the ratio of portrait photos to all photos in simplest form. If the club displays 60 photos in the same landscape-to-portrait ratio, how many of each type will it display?

9. Challenge

Jordan says that 4:7 and 12:20 are equivalent ratios because both numbers in the first ratio became larger. Is Jordan correct? Explain your reasoning.

What to accept

Accept equivalent ratio notation when the problem does not require simplest form or a specific notation. For word descriptions, accept any accurate sentence that keeps the quantities in the stated order.

1. Practice

5:7

2. Practice

3:16

3. Practice

For every 4 fiction books, there are 9 nonfiction books.

4. Practice

Sketchbooks: 2, 6, 8; Markers: 5, 15, 20

Sketchbooks	Markers
2	5
6	15
8	20

5. Practice

15:40, 15 to 40, 15/40

6. Practice

4:5

7. Apply

Black: 3, 9, 15, 18; White: 5, 15, 25, 30. A pack of 40 has 15 black wristbands and 25 white wristbands.

Multiply both parts of 3:5 by the same number to fill the table. Since 3 + 5 = 8 and 40 is 5 times 8, multiply each part by 5.

Black wristbands	White wristbands
3	5
9	15
15	25
18	30

8. Apply

Landscape to portrait: 3:2. Portrait to all photos: 2:5. For 60 photos: 36 landscape photos and 24 portrait photos.

Divide 24:16 by 8 to get 3:2, and divide 16:40 by 8 to get 2:5. A total of 60 is 12 groups of 5, so the 3:2 ratio becomes 36:24.

9. Challenge

No. Multiplying 4:7 by 3 gives 12:21, not 12:20. Also, 12:20 simplifies to 3:5, so the ratios are not equivalent.