

Ratio Match Lab

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

GRADE 6 • 6.PFA.1

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..."

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.

Answer: 11:17, 11 to 17, 11/17

PRACTICE 6 problems

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

ANSWER _____

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

ANSWER _____

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

ANSWER _____

- 4** The ratio of sketchbooks to markers is 2:5. Complete the table. Sketchbooks: 2, __, 8
Markers: 5, 15, __

ANSWER _____

- 5** 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 .

ANSWER _____

- 6** 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.

ANSWER _____

APPLY IT Show your work

- 1** A gaming club packs black and white wristbands in a ratio of 3 black wristbands to 5 white wristbands. Complete the table. Black: 3, 9, __, 18 White: 5, 15, 25, __ Then find how many black and white wristbands are in a pack of 40 wristbands that keeps the same ratio.

WORK SPACE

ANSWER _____

- 2** 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?

WORK SPACE

ANSWER _____

CHALLENGE One step up

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.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A class has 5 laptops and 7 tablets. Write the ratio of laptops to tablets as a:b.	5:7
2	A bag contains 3 yellow counters and 13 green counters. Write the ratio of yellow counters to all counters.	3:16
3	The ratio of fiction books to nonfiction books is 4:9. Write a sentence that describes this relationship.	For every 4 fiction books, there are 9 nonfiction books.
4	The ratio of sketchbooks to markers is 2:5. Complete the table. Sketchbooks: 2, __, 8 Markers: 5, 15, __	Sketchbooks: 2, 6, 8; Markers: 5, 15, 20
5	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.	15:40, 15 to 40, 15/40
6	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.	4:5

PART 2 • APPLY IT

- 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.
- 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.

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.

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.