

RATIOS AND PROPORTIONS

RATIO

- A ratio is a _____ comparison of two quantities, which describe the same attribute. They can be written several ways.

Example: There are two dogs to every three cats

Words: 2 dogs to 3 cats Colon: 2:3 Fraction: $\frac{2}{3}$

- Ratios can also be written in simplest terms or _____.

Use the soccer equipment below to practice writing ratios.



Gloves to Total Equipment	Cleats to Cones	Water Bottles to Total Equipment	Things You Wear to Total Equipment
Total Equipment to Cleats	Soccer Ball to Water Bottles	Cones to Things You Wear	Cones to Water Bottles

a. Write the ratios below. Then, determine if the ratios are different. Justify your thinking.

Gloves to Water Bottles _____ Water Bottles to Gloves _____

PROPORTION

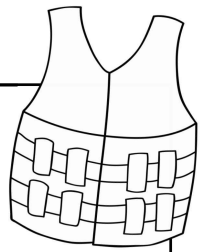
- A proportion shows two _____ in the form of an equation.
- Proportions can be solved by scaling or setting up an equation and solving.

$$\frac{2}{3} = \frac{x}{24}$$

$$\frac{2}{3} = \frac{x}{24}$$

- The cross products of a proportion will always be _____.

Apply your understanding of ratios and proportions to answer the questions below.



1. A surf shop likes to keep 8 life jackets in stock for every 5 pairs of goggles.
Record the ratios below.

- a. life jackets to goggles _____ b. goggles to total _____
- c. If 40 pairs of goggles are ordered, how many life jackets should be ordered?
- d. If 30 sets of goggles are ordered, how many total items should the surf shop order?

2. The ratio of creamy to crunchy peanut butter jars on a grocery store shelf is 5 to 3. There are 18 jars of crunchy peanut butter. What is the total number of jars of peanut butter on the shelf?

3. Kristi travels by plane at an average speed of 387.5 mph for 2 hours and by car at an average speed of 56.8 mph for 1.25 hours. What was the total distance in miles Kristi traveled during this time?

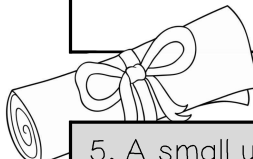
4. The ratio 3:8 is equivalent to the ratio 24:64. Place a check mark next to any proportions that show this equivalency. Explain your thinking.

$$\frac{24}{64} = \frac{8}{3}$$

$$\frac{64}{3} = \frac{24}{8}$$

$$\frac{8}{3} = \frac{64}{24}$$

$$\frac{8}{64} = \frac{3}{24}$$



Use your understanding of proportions to solve the real-world problem below.

5. A small university enrolls in-state and out-of-state students. The number of students enrolled in their most recent freshman class was 243. The school reported that it enrolled seven in-state students for every two out-of-state students. How many in-state and out-of-state students were enrolled in the freshman class?

I KNOW:

I NEED TO KNOW:

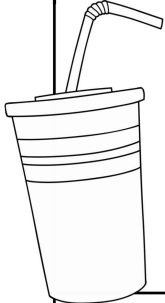
PLAN AND WORK:

SOLUTION:

Summarize today's lesson:

RATIOS AND PROPORTIONS

Answer the following questions. Be sure to justify your responses.



1. At the ice cream shop, there are 14 shakes sold for every 6 malts. Record the ratios below.

a. malts to shakes _____

b. malts to total _____

2. Eight out of 10 dentists prefer whitening toothpaste. What is the ratio of dentists who do not prefer whitening toothpaste to those who do?

3. Evren used 24 centimeters of tape to wrap 3 presents. How many presents would Evren be able to wrap with 112 centimeters of tape?

4. An NFL kicker misses 2 out of every 11 field goals. If he missed 8 field goals throughout the season, how many did he attempt?

5. First Class Airlines has 40 pilots for every 15 aircrafts. If they employ 250 pilots, how many aircrafts does First Class Airlines own?

6. A zoo has an elephant to giraffe ratio of 1 to 5. There are 18 total animals. How many are giraffes?

7. The library at school is organized by fiction and non-fiction books. There are 3 non-fiction books for every 7 fiction books. How many total books are there if the library has 240 non-fiction books?

8. Bruno's Burgers has a cook to server ratio of 2 to 5. The total number of servers and cooks is 42. How many more servers does Bruno's Burgers employ than cooks?

