

## Reteaching 7-3 Solving Proportions

If two ratios are equal, they form a **proportion**.

$$\frac{1}{5} = \frac{2}{10}$$

Equal ratios have equal cross products.

$$\frac{1}{5} \times \frac{2}{10} \rightarrow 5 \times 2 = 10$$

$$\frac{1}{5} \times \frac{2}{10} \rightarrow 1 \times 10 = 10$$

Equal cross products also show that a proportion is true.

$$\frac{1}{6} \times \frac{3}{18} \rightarrow 6 \times 3 = 18$$

$$\frac{1}{6} \times \frac{3}{18} \rightarrow 1 \times 18 = 18$$

The cross products are equal, so the ratios are equal and form a proportion.

You can find the missing term in a proportion by using cross products.

$$\text{Solve } \frac{4}{7} = \frac{12}{n}.$$

① Write the cross products.

$$4 \times n = 7 \times 12$$

② Simplify.

$$4n = 84$$

③ Divide by 4.

$$\frac{4n}{4} = \frac{84}{4}$$

④ Simplify.

$$n = 21$$

**Does each pair of ratios form a proportion? Write *yes* or *no*.**

1.  $\frac{4}{7}, \frac{8}{14}$

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2.  $\frac{5}{2}, \frac{10}{4}$

\_\_\_\_\_

3.  $\frac{6}{8}, \frac{3}{5}$

\_\_\_\_\_

4.  $\frac{15}{3}, \frac{10}{2}$

\_\_\_\_\_

5.  $\frac{15}{45}, \frac{25}{60}$

\_\_\_\_\_

6.  $\frac{12}{16}, \frac{15}{20}$

\_\_\_\_\_

7.  $\frac{9}{10}, \frac{19}{20}$

\_\_\_\_\_

8.  $\frac{32}{12}, \frac{8}{3}$

\_\_\_\_\_

9.  $\frac{56}{8}, \frac{1}{7}$

\_\_\_\_\_

10.  $\frac{4}{7}, \frac{14}{21}$

\_\_\_\_\_

11.  $\frac{40}{50}, \frac{8}{10}$

\_\_\_\_\_

12.  $\frac{5}{15}, \frac{9}{27}$

\_\_\_\_\_

**Choose a calculator, paper and pencil, or mental math. Find the value of each variable.**

13.  $\frac{n}{5} = \frac{2}{10}$

\_\_\_\_\_

14.  $\frac{9}{n} = \frac{27}{3}$

\_\_\_\_\_

15.  $\frac{30}{6} = \frac{a}{9}$

\_\_\_\_\_

16.  $\frac{42}{12} = \frac{x}{4}$

\_\_\_\_\_

17.  $\frac{t}{24} = \frac{3}{8}$

\_\_\_\_\_

18.  $\frac{16}{12} = \frac{r}{18}$

\_\_\_\_\_

19.  $\frac{18}{32} = \frac{27}{m}$

\_\_\_\_\_

20.  $\frac{48}{30} = \frac{32}{e}$

\_\_\_\_\_

21.  $\frac{5}{6} = \frac{h}{36}$

\_\_\_\_\_

22.  $\frac{60}{24} = \frac{w}{12}$

\_\_\_\_\_

23.  $\frac{11}{14} = \frac{33}{y}$

\_\_\_\_\_

24.  $\frac{90}{25} = \frac{x}{5}$

\_\_\_\_\_

25.  $\frac{10}{5} = \frac{6}{t}$

\_\_\_\_\_

26.  $\frac{9}{a} = \frac{3}{5}$

\_\_\_\_\_

27.  $\frac{b}{2} = \frac{16}{4}$

\_\_\_\_\_

28.  $\frac{12}{16} = \frac{n}{4}$

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