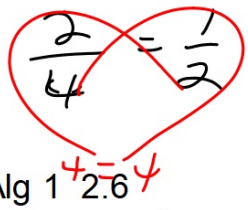



Alg 1 2.6
Compare ratios
Solve proportions

ratio
~~equivalent ratio~~
proportion
~~rate~~
unit rate

$\frac{7}{5}$ $\frac{\text{dog}}{\text{cats}}$ 7:5

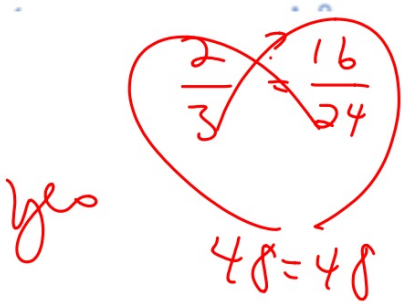
22:35
girls boys

d $\frac{7}{5} = \frac{x}{55}$ d
c c

$\frac{5x}{5} = \frac{385}{5}$ $x = 77$

## Example 1 Determine Whether Ratios Are Equivalent

Determine whether $\frac{2}{3}$ and $\frac{16}{24}$ are equivalent ratios. Write *yes* or *no*. Justify your answer.




Determine whether each pair of ratios are equivalent ratios. Write *yes* or *no*. Justify your answer.

**1A.** $\frac{6}{10}, \frac{2}{5}$

$\frac{6}{10} = \frac{2}{5}$

no

**1B.** $\frac{1}{6}, \frac{5}{30}$

$\frac{1}{6} \neq \frac{5}{30}$

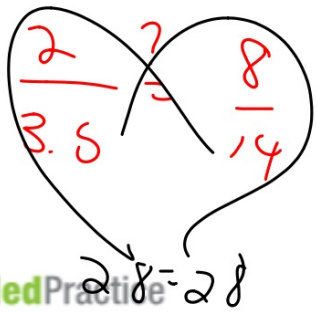
$30 = 30$

## Example 2 Cross Products

PT

Use cross products to determine whether each pair of ratios forms a proportion.

**a.** $\frac{2}{3.5}, \frac{8}{14}$




**Guided Practice**

**2A.** $\frac{0.2}{1.8}, \frac{1}{0.9}$

**2B.** $\frac{15}{36}, \frac{35}{42}$

## Example 3 Solve a Proportion

**Solve each proportion. If necessary, round to the nearest hundredth.**

**a.** $\frac{x}{10} = \frac{3}{5}$

$\frac{30}{5} = \frac{5x}{5}$ $x = 6$

**b.** $\frac{x-2}{14} = \frac{2}{7}$

$14 \cdot \frac{x-2}{14} = \frac{2}{7} \cdot 14$

$x - 2 = 4$

$+2 \quad +2$

$x = 6$

$28 = 7(x-2)$

$28 = 7x - 14$

$+14 \quad +14$

$42 = 7x$

$\frac{42}{7} = \frac{7x}{7}$ $x = 6$

**Guided Practice**

**3A.** $\frac{r}{8} = \frac{25}{40}$

**3B.** $\frac{(x+4)}{5} = \frac{3}{8}$

$15 = 8(x+4)$

$15 = 8x + 32$

$-32 \quad -32$

$-17 = 8x$

$\frac{-17}{8} = \frac{8x}{8}$ $x = -2.13$

## Real-World Example 4 Rate of Growth

**RETAIL** In the past two years, a retailer has opened 232 stores. If the rate of growth remains constant, how many stores will the retailer open in the next 3 years?

St. / yrs: $\frac{232}{2} = \frac{x}{3}$ St. / yrs

$\frac{2x}{2} = \frac{696}{2}$

$x = 348$

yr / st: $\frac{2}{232} = \frac{3}{x}$ yr / st

$2x = 696$

$\frac{2x}{2} = \frac{696}{2}$

$x = 348$

$232x = 6$

$x = 0.0259$

Determine whether each pair of ratios are equivalent ratios. Write *yes* or *no*.

1. $\frac{3}{7}, \frac{9}{14}$

2. $\frac{7}{8} \times \frac{42}{48}$

336=336

3. $\frac{2.8}{4.4} \times \frac{1.4}{2.1}$

6.16≠5.88

Solve each proportion. If necessary, round to the nearest hundredth.

4. $\frac{n}{9} = \frac{6}{27}$

5. $\frac{4}{u} = \frac{28}{35}$

6. $\frac{3}{8} = \frac{b}{10}$

$\frac{294}{28} = \frac{140}{29}$ 4-5

$u =$

$\frac{4}{5} \times \frac{28}{80}$

$\frac{140}{140}$

$\frac{30}{8} = \frac{86}{8}$

$\frac{3}{8} \times \frac{8.75}{10}$

30≠35