

Lesson 2-7 Solving Proportions

A proportion is an equation that states two ratios are equal.

A. What is the solution to the proportion $\frac{x}{7} = \frac{4}{5}$?

$$\frac{x}{7} = \frac{4}{5}$$

$$5 \cdot x = 7 \cdot 4$$

$$5x = 28$$

$$\frac{5x}{5} = \frac{28}{5}$$

$$x = 5.6$$

Write the equation

Cross-multiply

Divide

Simplify

B. $\frac{y}{3} = \frac{3}{5}$

$$5y = 3 \cdot 3$$

$$5y = 9$$

$$y = 1.8$$

C. $\frac{5}{9} = \frac{15}{x}$

$$5x = 9 \cdot 15$$

$$5x = 135$$

$$\frac{5x}{5} = \frac{135}{5}$$

$$x = 27$$

D. $\frac{n}{5} = \frac{2n+4}{6}$

$$6n = 5(2n+4)$$

$$6n = 10n + 20$$

$$\frac{-10n}{-10n}$$

$$\frac{-4n}{-4} = \frac{20}{-4}$$

$$n = -5$$

Distributive Property

E. $\frac{w+3}{4} = \frac{w}{2}$

$$2(w+3) = 4w$$

$$2w + 6 = 4w$$

$$4w = 2w + 6$$

$$\frac{-2w}{-2w} \quad \frac{-2w}{-2w}$$

$$\frac{2w}{2} = \frac{6}{2}$$

$$w = 3$$

Symmetric Property

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Try these on your own

Practice:

1. $\frac{-3}{4} = \frac{x}{26}$

3. $\frac{9}{2} = \frac{k}{25}$

5. $\frac{b+4}{5} = \frac{7}{4}$

7. $\frac{3}{3b+4} = \frac{2}{b-4}$

2. $\frac{m}{7} = \frac{3}{5}$

4. $\frac{2}{-5} = \frac{6}{t}$

6. $\frac{2c}{11} = \frac{c-3}{4}$

8. $\frac{c+1}{c-2} = \frac{4}{7}$
