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Lesson 1 Reteach

Solve Equations with Rational Coefficients

To solve an equation when the coefficient is a rational number, multiply each side by the multiplicative inverse of the fraction.

Example

Solve $\frac{4}{7}x = 16$. Check your solution.

$\frac{4}{7}x = 16$	Write the equation.
$\left(\frac{7}{4}\right) \cdot \frac{4}{7}x = \left(\frac{7}{4}\right) \cdot 16$	Multiply each side by the multiplicative inverse of $\frac{4}{7}, \frac{7}{4}$
$\frac{\cancel{7}^{1}}{\cancel{4}_{1}} \cdot \frac{\cancel{4}^{1}}{\cancel{7}_{1}}x = \frac{7}{\cancel{4}_{1}} \cdot \frac{\cancel{16}^{4}}{1}$	Write $16\ as\ \frac{16}{1}$. Divide out common factors.
$x = 28$	Simplify.

Check $\frac{4}{7}x = 16$	Write the original equation.
$\frac{4}{7}(28) \stackrel{?}{=} 16$	Replace *x* with 28.
$\frac{\cancel{4}}{\cancel{7}_{1}}\left(\frac{\cancel{28}^{4}}{1}\right) \stackrel{?}{=} 16$	Write 28 as $\frac{28}{1}$. Divide out common factors.
$16 = 16$ ✓	This sentence is true.

Solve each equation. Check your solution.

1. $\frac{1}{6}x = 4$

2. $\frac{5}{6}n = 15$

3. $\frac{2}{3}d = \frac{14}{15}$

4. $\frac{3}{4}w = \frac{21}{30}$

5. $\frac{3}{5}t = 12$

6. $\frac{1}{8}a = \frac{1}{3}$

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7. $-\frac{1}{6}x = -5$

8. $\frac{9}{4}r = \frac{27}{32}$

9. $-\frac{2}{5}m = 4$