Chapter 7	Equations and Inequalities
Date:	7.3 Solving Equations Using Multiplication or Division
Essential Question	How can you use multiplication or division to solve an equation?
Key Idea	

Key Ideas

Multiplication Property of Equality

Words When you multiply each side of an equation by the same nonzero number, the two sides remain equal.

Numbers

$$\frac{8}{4} = 2$$

$$\frac{8}{4} \cdot 4 = 2 \cdot 4$$

$$8 = 8$$

Algebra

$$\frac{x}{4} = 2$$

$$\frac{x}{4} \cdot 4 = 2 \cdot 4$$

$$x = 8$$

Multiplicative Inverse Property

Words The product of a nonzero number n and its reciprocal, $\frac{1}{n}$, is 1.

Numbers $5 \cdot \frac{1}{5} = 1$

Algebra $n \cdot \frac{1}{n} = \frac{1}{n} \cdot n = 1, n \neq 0$

Composition Book

7.3 Solving Equations Using Multiplication or Division

1) Solve.

$$\frac{w}{4} = 12 \qquad 4 \cdot \frac{w}{4} = 12 \cdot 4$$

$$w = 48$$

2)

$$\frac{2}{7}x = 6 \qquad \frac{7}{2} \cdot \frac{2}{7}x = 6 \cdot \frac{7}{2}$$

$$\frac{\cancel{7}}{\cancel{2}} \cdot \frac{\cancel{2}}{\cancel{7}}x = \cancel{6}^{3} \cdot \frac{7}{\cancel{2}_{1}}$$

$$x = 21$$

Look at your notes page.

To cancel a fraction multiply by its reciprocal.

Example: $\frac{2}{3} \cdot \frac{3}{2}$

fraction reciprocal

Complete numbers 1 - 4 on your notes page.

Solve.

1) $5 \cdot 6 = \frac{t}{5} \cdot 5$

$30 = t$

2) $2 \cdot \frac{x}{2} = 9 \cdot 2$

$x = 18$

3) $\frac{\cancel{4}}{\cancel{3}} \cdot \frac{\cancel{3}}{\cancel{4}} y = \overset{3}{\cancel{9}} \cdot \frac{4}{\underset{1}{\cancel{3}}}$

$y = 12$

4) $\frac{\cancel{3}}{\cancel{2}} \cdot \frac{\cancel{2}}{\cancel{3}} m = \overset{5}{\cancel{10}} \cdot \frac{3}{\underset{1}{\cancel{2}}}$

$m = 15$

Look at your notes page.

Key Idea

Division Property of Equality

Words When you divide each side of an equation by the same nonzero number, the two sides remain equal.

Numbers

$$8 \cdot 4 = 32$$

$$8 \cdot 4 \div 4 = 32 \div 4$$

$$8 = 8$$

Algebra

$$4x = 32$$

$$\frac{4x}{4} = \frac{32}{4}$$

$$x = 8$$