

7.3 Solving Equations Using Multiplication or Division

ESSENTIAL QUESTION:

3 TYPES OF EQUATIONS

1. $3x = 27$

$$\frac{3x}{3} = \frac{27}{3}$$

$$x = 9$$

2. $\frac{w}{7} = 9$

$$1 \cdot \frac{w}{1} = 9 \cdot 7$$

$$w = 63$$

3. $\frac{2}{3}x = 12$

$$\frac{3}{2} \cdot \frac{2}{3} x = \frac{12 \cdot 3}{1 \cdot 2}$$

$$x = 18$$

To solve a multiplication equation, you need to do the inverse of multiplication. (divide on both sides)

To solve a division equation, you need to do the inverse of division. (multiply on both sides)

To solve a multiplication equation when there is a fraction, you need to multiply both sides by the reciprocal

ON YOUR OWN

1. $\frac{w}{4} = 12$

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

$$w = 48$$

4. $14 = \frac{2}{5}y$

$$\frac{5}{2} \cdot \frac{14}{1} = \frac{5}{2} \cdot \frac{2}{5} y$$

$$35 = y$$

7. $p \cdot 3 = 18$

$$\frac{3p}{3} = \frac{18}{3}$$

$$p = 6$$

2. $\frac{2}{7}x = 12$

$$\frac{7}{2} \cdot \frac{2}{7} x = \frac{12 \cdot 7}{1 \cdot 2}$$

$$x = 42$$

5. $3z \div 2 = 9$

$$\frac{2}{3} \cdot \frac{3}{2} 2 = \frac{9 \cdot 2}{1 \cdot 1}$$

$$2 = 6$$

8. $12q = 60$

$$\frac{12q}{12} = \frac{60}{12}$$

$$q = 5$$

3. $\frac{a}{8} = 12$

$$8 \cdot \frac{a}{8} = 12 \cdot 8$$

$$a = 96$$

6. $5b = 65$

$$\frac{5b}{5} = \frac{65}{5}$$

$$b = 13$$

9. $81 = 9r$

$$\frac{81}{9} = \frac{9r}{9}$$

$$9 = r$$