

One Step Equations Using the Multiplication Rule With Emphasis on Decimals and Fractions

Goal: To get the numerical coefficient of the variable equal to 1

Method: Multiply both sides of the equation by the reciprocal (multiplicative inverse) of the coefficient.

Examples:

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

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

$$x = 18$$

The coefficient of x is $\frac{2}{3}$. The reciprocal of $\frac{2}{3}$ is $\frac{3}{2}$. The product of $\frac{2}{3}$ and $\frac{3}{2}$ is 1.

$$\frac{x}{0.4} = 6$$

$$\frac{0.4}{1} \cdot \frac{x}{0.4} = 6 \cdot \frac{0.4}{1}$$

$$x = 2.4$$

The coefficient of x is $\frac{1}{0.4}$.

The reciprocal of $\frac{1}{0.4}$ is $\frac{0.4}{1}$.

The product of $\frac{1}{0.4}$ and $\frac{0.4}{1}$ is 1.

Exercises:

1) $\frac{x}{3} = 3$

2) $\frac{3}{8}y = -\frac{9}{16}$

3) $\frac{r}{0.09} = 27$

4) $7.3z = 36.5$

5) $\frac{3a}{2} = -\frac{6}{11}$

6) $3d = \frac{3}{4}$

7) $\frac{s}{0.5} = 10$

8) $\frac{m}{12} = 3$

9) $1.79r = -9.129$

10) $\frac{1}{6}z = 13$

1) 9

3) 2.43

5) $-\frac{4}{11}$

7) 5

9) -5.1

2) $-\frac{3}{2}$

4) 5

6) $\frac{1}{4}$

8) 36

10) 78

$$11) \quad \frac{-4}{11}x = \frac{4}{9}$$

$$12) \quad -1.92m = -12.096$$

$$13) \quad -7r = 49$$

$$14) \quad 2.7n = -7.29$$

$$15) \quad \frac{r}{-2} = 9$$

$$16) \quad \frac{17}{2}q = -\frac{51}{4}$$

$$17) \quad 3.1x = 15.5$$

$$18) \quad \frac{3x}{5} = 15$$

$$19) \quad \frac{5}{3}r = -\frac{1}{15}$$

$$20) \quad -17.3m = 41.52$$

$$21) \quad -\frac{2}{3}r = 5\frac{3}{5}$$

$$22) \quad \frac{z}{0.03} = 1700$$

$$11) -\frac{11}{9}$$

$$13) -7$$

$$15) -18$$

$$17) 5$$

$$19) -\frac{1}{25}$$

$$21) -8\frac{2}{5}$$

$$12) 6.3$$

$$14) -2.7$$

$$16) -\frac{3}{2}$$

$$18) 25$$

$$20) -2.4$$

$$22) 51$$