

Multi-Step Equations

Solve each equation.

1) $6a + 5a = -11$

$$\frac{\cancel{11}a}{\cancel{11}} = \frac{-11}{\cancel{11}} \quad a = -1$$

2) $-6n - 2n = 16$

$$\frac{\cancel{-8}n}{\cancel{-8}} = \frac{16}{\cancel{-8}} \quad n = -2$$

3) $4x + 6 + 3 = 17$

$$\begin{array}{r} \downarrow \\ 4x + \cancel{6} + \cancel{3} = 17 \\ \hline 4x = 8 \\ x = 2 \end{array}$$

4) $0 = -5n - 2n$

$$\begin{array}{r} 0 = \cancel{-7}n \\ \hline 0 = n \end{array}$$

5) $6r - 1 + 6r = 11$

$$\begin{array}{r} \cancel{12}r - \cancel{1} = 11 \\ \hline \cancel{12}r = 12 \\ r = 1 \end{array}$$

6) $r + 11 + 8r = 29$

$$\begin{array}{r} \cancel{9}r + \cancel{11} = 29 \\ \hline \cancel{9}r = 18 \\ r = 2 \end{array}$$

~~7) $-10 = -14v + 14v$~~

8) $-10p + 9p = 12$

~~9) $42 = 8m + 13m$~~

10) $a - 2 + 3 = -2$

11) $18 = 3(3x - 6)$

$$\begin{array}{r} \downarrow \downarrow \\ 18 = \cancel{9}x - \cancel{18} \\ +18 \quad \quad +18 \\ \hline 36 = \cancel{9}x \\ \frac{36}{9} = \frac{\cancel{9}x}{\cancel{9}} \quad x = 4 \end{array}$$

12) $30 = -5(6n + 6)$

~~13) $37 = -3 + 5(x + 6)$~~

14) $-13 = 5(1 + 4m) - 2m$
 $\downarrow \downarrow \downarrow$
 $-13 = 5 + 20m - 2m$
 $-13 = 5 + 18m$
 $-5 \quad -5$

 $-18 = 18m$
16) $-2 = -(n - 8)$

$\frac{-18}{18} = \frac{18m}{18}$
 $-1 = m$

15) $4(-x + 4) = 12$

17) $-6(1 - 5v) = 54$

18) $8 = 8v - 4(v + 8)$
 $\downarrow \downarrow \downarrow$
 $8 = 8v - 4v - 32$
 $8 = 4v - 32$
 $+32 \quad +32$

 $40 = 4v$
 $\frac{40}{4} = \frac{4v}{4}$
 $v = 10$

20) $-5n - 8(1 + 7n) = -8$

19) $10(1 + 3b) = -20$

~~21) $8(4k - 4) = -5k - 32$~~

~~22) $-8(-8x - 6) = -6x - 22$~~

~~23) $8(1 + 5x) + 5 = 13 + 5x$~~

~~24) $-11 - 5a = 6(5a + 4)$~~