

## Practice Solving Multi-Step Equations

Directions: Solve the equation algebraically. Check your solution for the odd numbered problems.

1)  $-3(x+5) = 6$

$$-3(x+5) = 6$$

$$-3x - 15 = 6$$

$$+15 +15$$

$$-3x = 21$$

$$x = -7$$

2)  $\frac{x}{8} - \frac{1}{2} = -\frac{7}{2}$

$$\frac{x}{8} = (-3)8$$

$$x = -24$$

3)  $-8x + 9 = -11$

$$-10x + 9 = -11$$

$$-9 - 9$$

$$-10x = -20$$

$$x = 2$$

4)  $\frac{m}{2} + 6 = 10$

$$m = 8$$

5)  $-\frac{z}{3} + 5 = 9$

$$-\frac{z}{3} = 4$$

$$z = -12$$

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

$$4a = -\frac{6}{5}$$

$$a = -\frac{3}{5}$$

$$a = -\frac{3}{5}$$

7)  $2v + 7 = 3$

$$\begin{array}{r} -7 \quad -7 \\ \hline 2v = -4 \\ \frac{2v}{2} = \frac{-4}{2} = \textcircled{-2} \end{array}$$

8)  $4b + 3 = -9$

$$\begin{array}{r} \cancel{-3} \quad \cancel{-3} \\ \hline \cancel{4b} = \cancel{-12} \\ \frac{\cancel{4}}{4} = \frac{\cancel{-12}}{4} \\ b = \textcircled{-3} \end{array}$$

9)  $17 = 5k - 2$

$$\begin{array}{r} +2 \quad +2 \\ \hline \cancel{5k} = \cancel{19} \\ \frac{\cancel{5}}{5} = \frac{\cancel{19}}{5} \\ k = \textcircled{3.8} \end{array}$$

10)  $-6t - 5 = -10$

$$\begin{array}{r} \cancel{+5} \quad \cancel{+5} \\ \hline \cancel{-6t} = \cancel{-5} \\ \frac{\cancel{-6}}{-6} = \frac{\cancel{-5}}{-6} \\ t = \textcircled{0.8\bar{3}} \end{array}$$

11)  $8n + 16.2 = 1.6$

$$\begin{array}{r} \cancel{-16.2} \quad \cancel{-16.2} \\ \hline \cancel{8n} = \cancel{-14.6} \\ \frac{\cancel{8}}{8} = \frac{\cancel{-14.6}}{8} \\ n = \textcircled{-1.83} \end{array}$$

12)  $-5g + 2.3 = -18.8$

$$\begin{array}{r} \cancel{-2.3} \quad \cancel{-2.3} \\ \hline \cancel{-5g} = \cancel{-21.1} \\ \frac{\cancel{-5}}{-5} = \frac{\cancel{-21.1}}{-5} \\ g = \textcircled{4.22} \end{array}$$

13)  $2t - 5 = -10$

$$\begin{array}{r} +5 \\ +5 \end{array}$$

$$\frac{2t}{2} = \frac{-5}{2}$$

$$t = -2.5$$

14)  $-4p + 9 = -5$

$$\begin{array}{r} -9 \\ -9 \end{array}$$
$$\frac{-4p}{-4} = \frac{-14}{-4}$$

$$p = 3.5$$

15)  $11 = -5x - 2$

$$\begin{array}{r} -5x - 2 = 11 \\ +2 \\ +2 \end{array}$$

$$\begin{array}{r} -5x = 13 \\ -5 \\ -5 \end{array}$$

$$x = -2.6$$

16)  $4 + 2.2h = -3.7$

$$\begin{array}{r} -4 \\ -4 \end{array} = 4$$

$$\frac{2.2h}{2.2} = \frac{-7.7}{2.2}$$

$$h = -3.5$$

17)  $-4.8f + 6.4 = -8.48$

$$\begin{array}{r} -6.4 \\ -6.4 \end{array}$$
$$\frac{-4.8f}{-4.8} = \frac{-14.88}{-4.8}$$

$$f = 3.1$$

18)  $7.3y - 5.18 = -51.9$

$$\begin{array}{r} +5.18 \\ +5.18 \end{array}$$
$$\frac{7.3y}{7.3} = \frac{-46.72}{7.3}$$

$$y = -6.4$$

19)  $\frac{3}{5}g - \frac{1}{3} = -\frac{10}{3}$

~~$\frac{+1}{3}$~~   ~~$\frac{+1}{3}$~~   
 ~~$\frac{3}{5}g$~~   ~~$=$~~   ~~$\frac{-3}{3}$~~   
 ~~$\frac{3}{5}g$~~   ~~$=$~~   ~~$\frac{-3}{3}$~~   
 $g = -5$

20)  $\frac{a}{4} - \frac{5}{6} = -\frac{1}{2}$

~~$\frac{+3}{6}$~~   ~~$\frac{+5}{6}$~~   
 ~~$(\frac{a}{4})$~~   ~~$-(\frac{1}{3})$~~   ~~$4$~~   
 $a = \frac{4}{3}$  or  $1\frac{1}{3}$

21)  $-\frac{1}{3} + 2z = -\frac{5}{6}$

~~$\frac{+1}{3}$~~   ~~$\frac{+1}{2}$~~   
 ~~$2z$~~   ~~$=$~~   ~~$\frac{-1}{2}$~~   
 ~~$2z$~~   ~~$=$~~   ~~$\frac{-1}{2}$~~   
 $z = -\frac{1}{4}$

22)  $2 - \frac{c}{3} = -\frac{5}{2}$

~~$-2$~~   ~~$=$~~   ~~$-2$~~   
 ~~$(\frac{c}{3})$~~   ~~$=$~~   ~~$(-4\frac{1}{2})$~~   ~~$-3$~~   
 $c = 13\frac{1}{2}$

23)  $-\frac{2}{3}x + \frac{3}{7} = \frac{1}{2}$

~~$\frac{-2}{3}x$~~   ~~$+$~~   ~~$\frac{-3}{7}$~~   
 ~~$\frac{-2}{3}x$~~   ~~$=$~~   ~~$\frac{1}{14}$~~   
 ~~$\frac{-2}{3}x$~~   ~~$=$~~   ~~$\frac{1}{14}$~~   
 $x = -\frac{1}{28}$

24)  $-\frac{9}{4}v + \frac{4}{5} = \frac{7}{8}$

~~$\frac{-4}{5}$~~   ~~$\frac{-4}{5}$~~   
 ~~$-\frac{9}{4}v$~~   ~~$=$~~   ~~$\frac{3}{40}$~~   
 ~~$-\frac{9}{4}v$~~   ~~$=$~~   ~~$\frac{3}{40}$~~   
 $v = -\frac{1}{30}$

25)  $3v - 9v = 30$

$$\begin{array}{r} \cancel{-3v} = \cancel{30} \\ \cancel{-3} \quad \cancel{-3} \\ \hline v = -10 \end{array}$$

26)  $12x - 8x = -52$

$$\begin{array}{r} \cancel{4x} = \cancel{-52} \\ \cancel{4} \quad \cancel{4} \\ \hline x = -13 \end{array}$$

27)  $-8y - 5y + 7y = 72$

$$\begin{array}{r} \cancel{-6y} = \cancel{72} \\ \cancel{-6} \quad \cancel{-6} \\ \hline y = -12 \end{array}$$

28)  $6(x - 2) = -18$

$$\begin{array}{r} \overbrace{6(x-2)} \\ 6x - 12 = -18 \\ \hline +12 \quad +12 \\ \hline 6x = -6 \\ \cancel{6} \quad \cancel{6} \\ \hline x = -1 \end{array}$$

29)  $-4(m + 3) = 24$

$$\begin{array}{r} \overbrace{-4(m+3)} \\ -4m - 12 = 24 \\ \hline +12 \quad +12 \\ \hline -4m = 36 \\ \cancel{-4} \quad \cancel{-4} \\ \hline m = -9 \end{array}$$

30)  $-8(y + 9) = -40$

$$\begin{array}{r} \overbrace{-8(y+9)} \\ -8y - 72 = -40 \\ \hline +72 \quad +72 \\ \hline -8y = 32 \\ \cancel{-8} \quad \cancel{-8} \\ \hline y = -4 \end{array}$$