

Name Key

Period _____ Date _____

Solving for a Variable using Multiple Steps Practice

$$\begin{aligned} 1. \quad 18 &= 3(3x - 6) \\ 18 &= 9x - 18 \\ +18 & \quad +18 \\ \hline 36 &= 9x \\ \frac{36}{9} &= \frac{9x}{9} \\ 4 &= x \end{aligned}$$

$$\begin{aligned} 2. \quad 30 &= -5(6n + 6) \\ 30 &= -30n - 30 \\ +30 & \quad +30 \\ \hline 60 &= -30n \\ \frac{60}{-30} &= \frac{-30n}{-30} \\ -2 &= n \end{aligned}$$

$$\begin{aligned} 3. \quad 37 &= -3 + 5(x + 6) \\ 37 &= -3 + 5x + 30 \\ 37 &= 5x + 27 \\ -27 & \quad -27 \\ \hline 10 &= 5x \\ \frac{10}{5} &= \frac{5x}{5} \\ 2 &= x \end{aligned}$$

$$\begin{aligned} 4. \quad 4(-x + 4) &= 12 \\ -4x + 16 &= 12 \\ -16 & \quad -16 \\ \hline -4x &= -4 \\ \frac{-4x}{-4} &= \frac{-4}{-4} \\ x &= 1 \end{aligned}$$

$$\begin{aligned} 5. \quad -2 &= -(n - 8) \\ -2 &= -1(n - 8) \\ -2 &= -n + 8 \\ -8 & \quad -8 \\ \hline -10 &= -n \\ \frac{-10}{-1} &= \frac{-n}{-1} \\ 10 &= n \end{aligned}$$

$$\begin{aligned} 6. \quad -13 &= 5(1 + 4m) - 2m \\ -13 &= 5 + 20m - 2m \\ -13 &= 5 + 18m \\ -5 & \quad -5 \\ \hline -18 &= 18m \\ \frac{-18}{18} &= \frac{18m}{18} \\ -1 &= m \end{aligned}$$

7. $10(1 + 3b) = -20$

$$\begin{array}{r} 10 + 30b = -20 \\ -10 \quad -10 \\ \hline 30b = -30 \\ \frac{30b}{30} = \frac{-30}{30} \end{array}$$

$$b = -1$$

8. $8 = 8v - 4(v + 8)$

$$\begin{array}{r} 8 = 8v - 4v - 32 \\ 8 = 4v - 32 \\ +32 \quad +32 \\ \hline 40 = 4v \\ \frac{40}{4} = \frac{4v}{4} \end{array}$$

$$10 = v$$

9. $-5n - 8(1 + 7n) = -8$

$$\begin{array}{r} -5n - 8 - 56n = -8 \\ -61n - 8 = -8 \\ +8 \quad +8 \\ \hline -61n = 0 \\ \frac{-61n}{-61} = \frac{0}{-61} \end{array}$$

$$n = 0$$

10. $8(4k - 4) = -5k - 32$

$$\begin{array}{r} 32k - 32 = -5k - 32 \\ +32 \quad +32 \\ \hline 32k = -5k \\ +5k \quad +5k \\ \hline 37k = 0 \\ \frac{37k}{37} = \frac{0}{37} \end{array}$$

$$k = 0$$

11. $8(1 + 5x) + 5 = 13 + 5x$

$$\begin{array}{r} 8 + 40x + 5 = 13 + 5x \\ 13 + 40x = 13 + 5x \\ -13 \quad -13 \\ \hline 40x = 5x \\ -5x \quad -5x \\ \hline 35x = 0 \\ \frac{35x}{35} = \frac{0}{35} \end{array}$$

$$x = 0$$

12. $-11 - 5a = 6(5a + 4)$

$$\begin{array}{r} -11 - 5a = 30a + 24 \\ +5a \quad +5a \\ \hline -11 = 35a + 24 \\ -24 \quad -24 \\ \hline -35 = 35a \\ \frac{-35}{35} = \frac{35a}{35} \end{array}$$

$$-1 = a$$