

Name _____

Notes:

Date _____

Period 8

solving equation with variables
on both sides.

$$1) 3 = b - 4b$$

$$\frac{3}{-3} = \frac{-3b}{-3}$$

$$\boxed{-1 = b}$$



check

$$3 = b - 4b$$

$$3 = (-1) - 4(-1)$$

$$3 = -1 + 4$$

$$3 = 3 \checkmark$$

$$2) 4x + 3 - 6 = -15$$

$$4x \begin{pmatrix} -3 \\ +3 \end{pmatrix} = -15 + 3$$

$$\frac{4x}{4} = \frac{-12}{4}$$

$$\boxed{x = -3}$$



check

$$4x + 3 - 6 = -15$$

$$4(-3) + 3 - 6 = -15$$

$$-12 + 3 - 6 = -15$$

$$-9 - 6 = -15$$

$$-15 = -15 \checkmark$$

$$3) \quad -2x + 4 - 2x = 0$$

$$-4x + 4 = 0$$

$$\frac{-4x}{-4} = \frac{-4}{-4}$$

$$x = 1$$



check

$$\begin{aligned} -2x + 4 - 2x &= 0 \\ -2(1) + 4 - 2(1) &= 0 \\ -2 + 4 - 2 &= 0 \\ 0 &= 0 \checkmark \end{aligned}$$

$$4) \quad 2b + 6b = 16$$

$$\frac{8b}{8} = \frac{16}{8}$$

$$b = 2$$

check

$$\begin{aligned} 2b + 6b &= 16 \\ 2(2) + 6(2) &= 16 \\ 4 + 12 &= 16 \\ 16 &= 16 \checkmark \end{aligned}$$

$$5) \quad 4 = x + 5 + 1$$

$$\begin{aligned} 4 &= x + 6 \\ -6 & \\ \hline -2 &= x \end{aligned}$$

check

$$\begin{aligned} 4 &= x + 5 + 1 \\ 4 &= -2 + 6 \\ 4 &= 4 \checkmark \end{aligned}$$

$$6) \quad 2 + 5n + 6n = -9$$

$$\begin{array}{r} 2 + 11n = -9 \\ -2 \quad -2 \\ \hline 11n = -11 \\ 11 \quad 11 \end{array}$$

$$n = -1$$

check

$$2 + 5n + 6n = -9$$

$$2 + 5(-1) + 6(-1) = -9$$

$$2 - 5 - 6 = -9$$

$$2 - 11 = -9$$

$$-9 = -9 \checkmark$$

$$7) \quad 6(2 + 7x) = -282$$

$$\begin{array}{r} 12 + 42x = -282 \\ -12 \quad -12 \\ \hline 42x = -294 \\ 42 \quad 42 \end{array}$$

$$x = -7$$

check

$$6(2 + 7x) = -282$$

$$6(2 + 7(-7)) = -282$$

$$6(2 - 49) = -282$$

$$6(-47) = -282$$

$$-282 = -282 \checkmark$$

$$8) \quad 5(7n-7) = -140$$

$$35n - 35 = -140$$

$$35n = -105$$

$$\frac{35n}{35} = \frac{-105}{35}$$

$$n = -3$$

check

$$5(7n-7) = -140$$

$$5(7(-3)-7) = -140$$

$$5(-21-7) = -140$$

$$5(-28) = -140$$

$$-140 = -140 \checkmark$$

$$9) \quad 3n-3 = -7(7n-7)$$

$$3n - 3 = -49n + 49$$

$$3n = -49n + 52$$

$$+49n$$

$$52n = 52$$

$$\frac{52n}{52} = \frac{52}{52}$$

$$n = 1$$

check

$$3n-3 = -7(7n-7)$$

$$3(1)-3 = -7(7(1)-7)$$

$$3-3 = -7(7-7)$$

$$0 = -7(0)$$

$$0 = 0 \checkmark$$

$$10) \quad 8(x+3) - 4 = -3x - 2$$

$$8x + 24 - 4 = -3x - 2$$

$$\begin{array}{r} 8x + 20 = -3x - 2 \\ -8x \quad -8x \end{array}$$

$$\hline 20 = -11x - 2$$

$$\begin{array}{r} +2 \\ \hline 22 = -11x \\ -11 \quad -11 \end{array}$$

$$\boxed{-2 = x}$$

check

$$8(x+3) - 4 = -3x - 2$$

$$8(-2+3) - 4 = -3(-2) - 2$$

$$8(1) - 4 = 6 - 2$$

$$8 - 4 = 4$$

$$4 = 4 \checkmark$$

$$11) \quad 4x + 2 = 18$$

$$\begin{array}{r} 4x + 2 = 18 \\ -2 \quad -2 \\ \hline 4x = 16 \\ 4 \quad 4 \end{array}$$

$$\boxed{x = 4}$$

check

$$4x + 2 = 18$$

$$4(4) + 2 = 18$$

$$16 + 2 = 18$$

$$18 = 18 \checkmark$$