Solving Equations Using the Distributive Property

Step 1: Use the Distributive Property to remove the parentheses.
Step 2: Combine like terms on each side of the equation.
Step 3: Use opposite operations to move the variables to one side of the equation.
Step 4: Solve the equation by isolating the variable.

Directions: Solve each equation.

1. $3(x-4)-2=-11$

$3x-12-2=-11$ $\qquad -12+{}^{-}2=-14$

$3x-14=-11$

$+14 \quad +14$

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

$\boxed{x=1}$

2. $2m-3(2m-7)=-5m+1$

$2m-6m+21=-5m+1$ $\qquad 2m+{}^{-}6m=-4m$

$-4m+21=-5m+1$

$+5m \quad +5m$

$m+21=1$

$-21 \quad -21$

$\boxed{m=-20}$

3. $7-1(2x+4)=-3(-5x+8)-7$

$7-2x-4=15x-24-7$ $\qquad -24+{}^{-}7=-31$

$$3 - 2x = 15x - 31$$
$$+2x \qquad +2x$$
$$3 = 17x - 31$$
$$+31 \qquad +31$$
$$\frac{34}{17} = \frac{17x}{17}$$
$$\boxed{2 = x}$$

4. $1.2m - .6(m-2) = 2.4m$

$$1.2m - .6(m-2) = 2.4m$$
$$12m - 6(m-2) = 24m$$
$$12m - 6m + 12 = 24m$$
$$6m + 12 = 24m$$
$$-6m \qquad -6m$$
$$\frac{12}{18} = \frac{18m}{18}$$
$$\frac{12 \div 6}{18 \div 6} = \frac{2}{3}$$
$$\boxed{2/3 = m}$$

5. $-\frac{2}{5}y + \frac{3}{2}(y-6) = \frac{7}{2}y - 3(2-y)$

$$\frac{-2y \cdot 2}{5 \cdot 2} + \frac{3(y-6)}{2 \cdot 5} = \frac{7y \cdot 5}{2 \cdot 5} - \frac{3(2-y)}{1 \cdot 10}$$

LCD = 10

$$\frac{-4y}{10} + \frac{15(y-6)}{10} = \frac{35y}{10} - \frac{30(2-y)}{10}$$
$$-4y + 15(y-6) = 35y - 30(2-y)$$
$$-4y + 15y - 90 = 35y - 60 + 30y$$

$$11y - 90 = 65y - 60$$
$$-11y \qquad\qquad -11y$$

$$-90 = 54y - 60$$
$$+60 \qquad\qquad +60$$

$$\frac{-30}{54} = \frac{54y}{54}$$

$$\boxed{\frac{-5}{9} = y}$$

$$\frac{-30 \div 6}{54 \div 6} = -\frac{5}{9}$$