

Name: Key

Per A B C D E F Date \_\_\_\_\_

**M3-T1-L2 HW: Multi-Step Equations (variables on same side)**

1-10: Solve each multi-step equation. SHOW ALL YOUR WORK.

1.  $3(x - 2) = 24$

$$\begin{array}{r} 3x - 6 = 24 \\ +6 \quad +6 \\ \hline 3x = 30 \\ \frac{3}{3} \quad \frac{3}{3} \\ \hline x = 10 \end{array}$$

2.  $7x + 2x - 5 + x = 45$

$$\begin{array}{r} 10x - 5 = 45 \\ +5 \quad +5 \\ \hline 10x = 50 \\ \frac{10}{10} \quad \frac{10}{10} \\ \hline x = 5 \end{array}$$

3.  $3x - 7x - 8 = 24$

$$\begin{array}{r} -4x - 8 = 24 \\ +8 \quad +8 \\ \hline -4x = 32 \\ \frac{-4}{-4} \quad \frac{-4}{-4} \\ \hline x = -8 \end{array}$$

4.  $x - 5 - 9x - 3 = -48$

$$\begin{array}{r} -8x - 8 = -48 \\ +8 \quad +8 \\ \hline -8x = -40 \\ \frac{-8}{-8} \quad \frac{-8}{-8} \\ \hline x = 5 \end{array}$$

5.  $4(x + 2) - 14 = 18$

$$\begin{array}{r} 4x + 8 - 14 = 18 \\ \hline 4x - 6 = 18 \\ +6 \quad +6 \\ \hline 4x = 24 \\ \frac{4}{4} \quad \frac{4}{4} \\ \hline x = 6 \end{array}$$

6.  $3(x - 5) - 9x = -33$

$$\begin{array}{r} 3x - 15 - 9x = -33 \\ \hline -6x - 15 = -33 \\ +15 \quad +15 \\ \hline -6x = -18 \\ \frac{-6}{-6} \quad \frac{-6}{-6} \\ \hline x = 3 \end{array}$$

7.  $12x - (4x + 10) = 54$

$$\begin{array}{r} 12x - 4x - 10 = 54 \\ \hline 8x - 10 = 54 \\ +10 \quad +10 \\ \hline 8x = 64 \\ \frac{8}{8} \quad \frac{8}{8} \\ \hline x = 8 \end{array}$$

8.  $20 = 8y - (8 + 6y)$

$$\begin{array}{r} 20 = 8y - 8 - 6y \\ \hline 20 = 2y - 8 \\ +8 \quad +8 \\ \hline 28 = 2y \\ \frac{28}{2} \quad \frac{2y}{2} \\ \hline 14 = y \end{array}$$

9.  $\frac{1}{2}(x - 8) = 12$

$$\begin{array}{r} \frac{1}{2}x - 4 = 12 \\ \frac{1}{2}x + 4 = 12 \\ \hline \frac{1}{2}x = 16 \\ \frac{2}{2} \cdot \frac{1}{2}x = 2 \cdot 16 \\ \hline x = 32 \end{array}$$

10.  $\frac{2}{3}(3x + 6) - 4x = 12$

$$\begin{array}{r} 2x + 4 - 4x = 12 \\ \hline -2x + 4 = 12 \\ -4 \quad -4 \\ \hline -2x = 8 \\ \frac{-2}{-2} \quad \frac{8}{-2} \\ \hline x = -4 \end{array}$$