

Name: Key

Date: _____

Class: _____

Solve each equation. (Some equations may have no solution or infinite solutions)

$$\begin{array}{r}
 p-1 = 5p+3p-8 \\
 p-1 = 8p-8 \\
 \underline{-p \quad -p} \\
 -1 = 7p-8 \\
 +8 \quad +8 \\
 \hline
 7 = 7p \\
 \frac{7}{7} = \frac{7p}{7} \\
 \hline
 1 = p
 \end{array}$$

$$\begin{array}{r}
 p-4 = -9+2p \\
 \underline{-p \quad -p} \\
 -4 = -9+p \\
 +9 \quad +9 \\
 \hline
 5 = p
 \end{array}$$

$$\begin{array}{r}
 5n+34 = -2(1-7n) \\
 5n+34 = -2+14n \\
 \underline{-5n \quad -5n} \\
 34 = -2+9n \\
 +2 \quad +2 \\
 \hline
 36 = 9n \\
 \frac{36}{9} = \frac{9n}{9} \\
 \hline
 4 = n
 \end{array}$$

$$\begin{array}{r}
 -18-6k = 6(1+3k) \\
 -18-6k = 6+18k \\
 \underline{+6k \quad +6k} \\
 -18 = 6+24k \\
 -6 \quad -6 \\
 \hline
 -24 = 24k \\
 \frac{-24}{24} = \frac{24k}{24} \\
 \hline
 -1 = k
 \end{array}$$

$$\begin{array}{r}
 5(2x-1) + x + 17 = 5x + 6(x+2) \\
 10x-5+x+17 = 5x+6x+12 \\
 \underline{11x+12 = 11x+12} \\
 \underline{-12 \quad -12} \\
 \hline
 11x = 11x \\
 \frac{11}{11} = \frac{11}{11} \\
 \hline
 x = x
 \end{array}$$

(Infinitely many sol.)

$$\begin{array}{r}
 13-(2x+2) = 2(x+2) + 3x \\
 13-2x-2 = 2x+4+3x \\
 \underline{11-2x = 5x+4} \\
 \underline{+2x \quad +2x} \\
 \hline
 11 = 7x+4 \\
 -4 \quad -4 \\
 \hline
 7 = 7x \\
 \frac{7}{7} = \frac{7x}{7} \\
 \hline
 1 = x
 \end{array}$$

$$\begin{array}{r}
 2(2d+3) = 6(d+12) \\
 4d+6 = 6d+72 \\
 \underline{-4d \quad -4d} \\
 6 = 2d+72 \\
 \underline{-72 \quad -72} \\
 \hline
 -66 = 2d \\
 \frac{-66}{2} = \frac{2d}{2} \\
 \hline
 -33 = d
 \end{array}$$

$$\begin{array}{r}
 4x+6+3x = 5x+7+2x \\
 7x+6 = 7x+7 \\
 \underline{-7x \quad -7x} \\
 \hline
 6 = 7 \\
 \text{Never true} \\
 \hline
 \text{(no solution)}
 \end{array}$$

$$\begin{array}{r}
 \frac{1}{3}(a-6) = 28 \\
 \frac{1}{3}a - 2 = 28 \\
 \underline{+2 \quad +2} \\
 \frac{1}{3}a = 30 \\
 \frac{\frac{1}{3}a}{\frac{1}{3}} = \frac{30}{\frac{1}{3}} \\
 \hline
 a = 90
 \end{array}$$

* divide by fraction
 $\frac{30}{1} \cdot \frac{3}{1}$
 $\frac{90}{1} = 90$

(a=90)

$$\begin{array}{r}
 \frac{1}{2}(2x-4) + 2x = 4x-1 \\
 x-2+2x = 4x-1 \\
 \underline{3x-2 = 4x-1} \\
 \underline{-3x \quad -3x} \\
 \hline
 -2 = x-1 \\
 +1 \quad +1 \\
 \hline
 -1 = x
 \end{array}$$

(-1=x)