

Notes 1-2

Sec 1

Multi-Step Equations

Unit 1

Warm-up: Solve the equations for x .

1. ~~$\frac{x}{4} = 22 \cdot 4$~~

$$x = 88$$

2. ~~$-5r = 40$~~
 ~~-5~~ ~~-5~~

$$r = -8$$

3. $\frac{10}{-7} = \frac{t+7}{-7}$

$$3 = t$$

$$t = 3$$

4. $\frac{-w}{-1} = \frac{10}{-1}$

$$w = -10$$

$$-|w| = 10$$

Distributive Property:

$$2(3x+9)$$

$$6x+18$$

$$-5(3x-7)$$

$$-15x+35$$

Combining Like-Terms

$$2x+3+x-4$$

$$3x-1$$

$$-x+9+10+6x$$

$$5x+19$$

Getting Like-Terms on the Same Side

$$\begin{array}{r} 2x+7=5x-2 \\ -2x \quad -2x \\ \hline 7=3x-2 \\ +2 \quad +2 \\ \hline 9=3x \end{array}$$

No Solution

$$2=17 \quad \boxed{\text{Not true}}$$

$$x = \#$$

$$\begin{array}{r} 9=3x \\ \frac{9}{3} = \frac{3x}{3} \\ 3=x \end{array}$$

$$\boxed{x=3}$$

All Real Numbers

$$5=5 \quad \text{True}$$

Solving Process:

$$4(x+7)-2=x-4$$

Distribute	$4x+28-2=x-4$
Combine like-terms	$4x+26=x-4$
Get x's on the same side	$3x+26=-4$
Get non x's on the same side	$3x=-30$
Get x alone	$x=-10$

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Practice: Solve each equation for the unknown variable

1. $6x + 5x = 33$

$$\frac{11x}{11} = \frac{33}{11}$$

$$x = 3$$

2. $2(5x - 4) = 2$

$$\frac{10x - 8}{+8 +8} = \frac{2}{+8 +8}$$

$$\frac{10x}{10} = \frac{10}{10}$$

$$x = 1$$

3. $2(4w - 7) - 8w + 4 = 6$

$$8w - 14 - 8w + 4 = 6$$

$$-10 = 6$$

No solution \boxed{NS}

4. $5a + 3 = 2(2a - 4)$

$$\frac{5a + 3}{-4a -4a} = \frac{4a - 8}{-4a -4a}$$

$$\frac{a + 3}{-3 -3} = \frac{-8}{-3 -3}$$

$$a = -11$$

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

$$\frac{-5x - 2}{+5x +5x} = \frac{x - 8}{+5x +5x}$$

$$\frac{-2}{+8} = \frac{6x - 8}{+8}$$

$$\frac{6}{6} = \frac{6x}{6}$$

$$1 = x \quad \text{or} \quad \boxed{x = 1}$$

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$$6. \frac{1}{3}(3x+9) = 2x+3-x$$

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

$$\hline 3=3 \quad \boxed{\text{ARN}}$$

$$7. 3(x+7)+7 = 5x+28-2x$$

$$3x+21+7 = 5x+28-2x$$

$$3x+28 = 3x+28 \quad \boxed{\text{ARN}}$$

$$8. 14 - \frac{2}{3}y = \frac{2}{3}y - 14$$

$$+\frac{2}{3}y \quad +\frac{2}{3}y$$

$$\hline 14 = \frac{4}{3}y - 14$$

$$+14 \quad \quad +14$$

$$\hline \frac{28}{\frac{4}{3}} = \frac{\frac{4}{3}y}{\frac{4}{3}}$$

$$21 = y$$

$$\boxed{y=21}$$

