

1.) Simplify $-4(12x - 1) + 3x$

$$\begin{array}{r} -48x + 4 + 3x \\ \hline -45x + 4 \end{array}$$

2.) Solve the equation: $\frac{4}{8}x - 1 = 6$

$$\begin{array}{r} \frac{4}{8}x - 1 = 6 \\ +1 \quad +1 \\ \hline \frac{4}{8}x = 7 \end{array}$$

$$\frac{4x}{4} = \frac{56}{4} \quad \text{X} = 14$$

3.) Translate then solve:

8 less than the product of a number and 2 is -4.

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

Watch out!

The examples below are different in that the multiplication/division is done FIRST, followed by the addition/subtraction.

19. $\frac{x+11}{8} = -3$

$$\begin{array}{r|l} x+11 & = -24 \\ -11 & -11 \\ \hline x & = -35 \end{array}$$

21. $1 = \frac{a-13}{-6}$

$$\begin{array}{r|l} -6 & = a-13 \\ +13 & +13 \\ \hline 7 & = a \end{array}$$

20. $\frac{n-5}{-2} = -7$

$$\begin{array}{r|l} n-5 & = 14 \\ +5 & +5 \\ \hline n & = 19 \end{array}$$

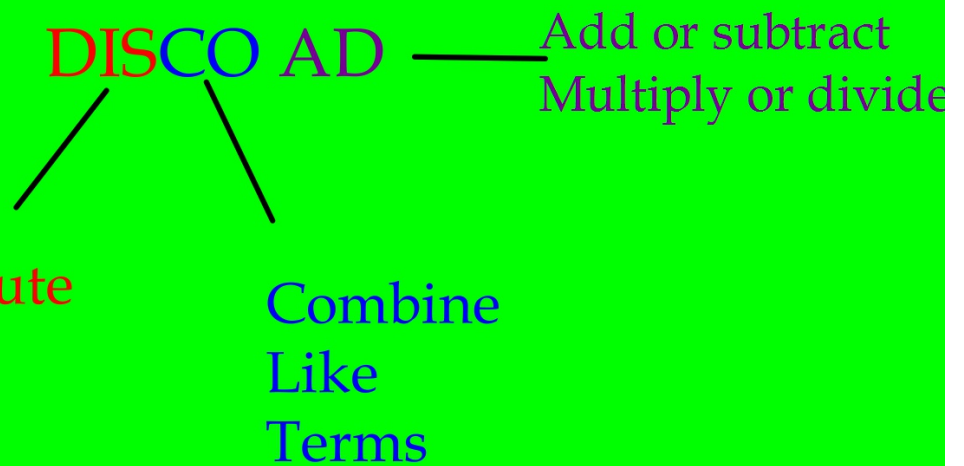
22. $4 = \frac{w+8}{9}$

$$\begin{array}{r|l} 36 & = w+8 \\ -8 & -8 \\ \hline 28 & = w \end{array}$$

$$\frac{x}{2} + 1 = 4$$

$$\frac{2x+3}{2} = 4$$

Main Ideas/Questions	Notes	
What are the steps to solve a <u>Multi-Step</u> Equation? 3 OR MORE	1.	Distribute
	2.	Combine like terms
	3.	Solve.



$$1) \quad 9x + 1 - 7x - 5 = -20$$

$$\begin{array}{r} 2x - 4 = -20 \\ +4 \quad +4 \\ \hline \end{array}$$

$$\begin{array}{r} 2x = -16 \\ \hline \end{array}$$

$$x = -8$$

$$2) \quad -7(3a - 1) = 91$$

$$\begin{array}{r} -21a + 7 = 91 \\ \downarrow -7 \quad -7 \\ \hline \end{array}$$

$$\begin{array}{r} -21a = 84 \\ \hline \end{array}$$

$$\begin{array}{r} -21 \quad -21 \\ a = -4 \end{array}$$

$$3) 4m - 5(3m + 10) = 126$$

$$4m - 15m - 50 = 126$$

$$-11m - 50 = 126$$

$$+50 \quad +50$$

$$\hline -11m = 176$$

$$\frac{-11}{-11} \quad \frac{-11}{-11}$$

$$m = -16$$

$$4) -3(k - 8) - (k + 5) = 23$$

$$-3k + 24 - k - 5 = 23$$

$$-4k + 19 = 23$$

$$\frac{-19}{-19} \quad \frac{-19}{-19}$$

$$-4k = 4$$

$$\frac{-4}{-4} \quad \frac{-4}{-4}$$

$$k = -1$$

$$5) 10x - 6(2x + 5) = 20$$

$$10x - 12x - 30 = 20$$

$$-2x - 30 = 20$$

$$+30 \quad +30$$

$$\underline{-2x = 50}$$

$$\frac{-2x}{-2} = \frac{50}{-2}$$
$$x = -25$$

$$6) 8(2w - 1) - 4w = -116$$

$$16w - 8 - 4w = -116$$

$$12w - 8 = -116$$

$$+8 \quad +8$$

$$\underline{12w = -108}$$

$$\frac{12w}{12} = \frac{-108}{12}$$

$$w = -9$$

7) $11h - (2h - 1) = 118$

$$11h - 2h + 1 = 118$$

$$9h + 1 = 118$$

$$\begin{array}{r} -1 \quad -1 \\ \hline \end{array}$$

$$9h = 117$$

$$\frac{9h}{9} = \frac{117}{9}$$

$$h = 13$$

8) $\frac{1}{2}(10x - 2) + 3x = -25$

Topic: **Variables on Both Sides**

Date:

Main Ideas/Questions

Notes

Steps

1. $5y - 8 = 3y + 12$

2. $-6x + 14 = 12 - 8x$

5. $12 - 2u = 9u + 45$

6. $4(2w - 1) = -10(w - 5)$

7. $5x - (x + 4) = 10 - 2(x - 8)$

8. $8(y + 4) - 2(y - 1) = 70 - 3y$