Name:_____ Date:_____

UNIT 3 **LESSON 6.5**

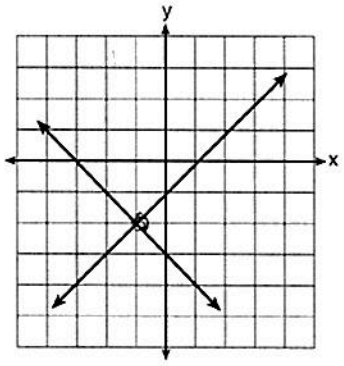
Do Now: What is the solution of the system of equations shown in the graph below?

1) $(1, 0)$ and $(-3, 0)$

2) $(0, -3)$ and $(0, -1)$

3) $(-1, -2)$

4) $(-2, -1)$



AIM: What are Multipliers?

1. Consider the following compound sentence: $y = -x + 10$ and $y = 2x + 1$.

   a. How many same solutions do these lines have? Explain your answer. one solution. Both lines will intersect each other at one point of intersection.

   b. Multiply both equations by two.

$2(y = -x + 10)$ $\quad$ $2(y = 2x + 1)$

$2y = -2x + 20$ $\quad$ $2y = 4x + 2$

   c. How many same solutions do the new equations have? Explain your answer. one solution. $2y = -2x + 20$ & $2y = 4x + 2$ are multipliers of the original equations.

2. Consider the following compound sentence: $4y = -4x + 40$ and $5y = 10x + 5$.

   a. How many same solutions do these lines have? Explain your answer. one solution.

$\frac{4y}{4} = \frac{-4x}{4} + \frac{40}{4}$ $\quad$ $\frac{5y}{5} = \frac{10x}{5} + \frac{5}{5}$

$y = -x + 10$ $\quad$ $y = 2x + 1$

$4y = -4x + 10$ & $5y = 10x + 5$ are multipliers of the original equations.

3. Which system of equations has the same solution as the system below?

$2x + 2y = 16$ $2(x + y = 8)$

$3x - y = 4$

1) $2x + 2y = 16$

$\frac{6x}{2} - \frac{2y}{2} = \frac{4}{2}$ $2(3x - y = 2)$

2) $2x + 2y = 16$ $2(x + y = 8)$

$\frac{6x}{2} - \frac{2y}{2} = \frac{8}{2}$ $2(3x - y = 4)$

3) $x + y = 16$

$3x - y = 4$

4) $\frac{6x}{6} + \frac{6y}{6} = \frac{48}{6}$ $6(x + y = 8)$

$\frac{6x}{2} + \frac{2y}{2} = \frac{8}{2}$ $2(3x + y = 4)$

4. A system of equations is given below. Which system of equations does *not* have the same solution?

$x + 2y = 5$

$2x + y = 4$

1) $\frac{3x}{3} + \frac{6y}{3} = \frac{15}{3}$ $3(x + 2y = 5)$

$2x + y = 4$

2) $\frac{4x}{4} + \frac{8y}{4} = \frac{20}{4}$ $4(x + 2y = 5)$

$2x + y = 4$

3) $x + 2y = 5$

$\frac{6x}{3} + \frac{3y}{3} = \frac{12}{3}$ $3(2x + y = 4)$

4) $x + 2y = 5$

$\frac{4x}{2} + \frac{2y}{2} = \frac{12}{2}$ $2(2x + y = 6)$