$y=mx+b$

Day 28: Solving FOR a Certain Variable

Intro:

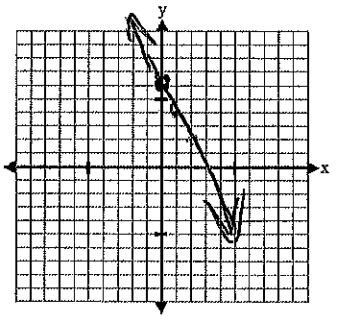
Graph $2x + y = 6$

$-2x \quad -2x$

$y = -2x + 6$

OR

$y = 6 - 2x$



$2 + y = 6$

$-2 \quad -2$

Solving **FOR** a certain variable, is similar to solving regular equations. You follow the same process but remember, you can only combine like terms.

Notes:

Solve this equation for x:

$2x - 6 = 18$

$+6 \quad +6$

$\frac{2x}{2} = \frac{24}{2}$

$x = 12$

Solve this equation for x:

$2x - 6y = 18$

$+6y \quad +6y$

$\frac{2x}{2} = \frac{18+6y}{2}$

$x = 9 + 3y$

You Try:

Solve each equation for **y**:

1) $10x - 5y = 35$

$-10x \quad -10x$

$\frac{-5y}{-5} = \frac{-10x+35}{-5}$

$y = 2x - 7$

2) $2x - 5y = 3$

$-2x \quad -2x$

$\frac{-5y}{-5} = \frac{-2x+3}{-5}$

$y = \frac{2}{5}x - \frac{3}{5}$

3) How are the resulting equations in **problems 1-2** (when y is isolated) similar? How are they different?

They are both in $y=mx+b$ form, but #2 has fractions that cannot be reduced.

Examples with FORMULAS:

4. Solve for w: $2w + 2l = P$

$-2l \quad -2l$

$\frac{2w}{2} = \frac{-2l + P}{2}$

$w = -l + \frac{P}{2}$

5. Solve for h: $V = lwh$

$\frac{lw}{} \quad \frac{lw}{}$

$\frac{V}{lw} = h$

GROUP PRACTICE

For each problem: (a) Solve each equation for Y, then (b) Compare your answer to the other members of your table group, and finally (c) Have one person from your table write your group's ANSWER on the appropriate poster around the room

1) $2x - 5y = -10$

$-2x \quad -2x$

$\frac{-5y}{-5} = \frac{-2x - 10}{-5}$

$y = \frac{2}{5}x + 2$

2) $5x + 2y = 10$

$-5x \quad -5x$

$\frac{2y}{2} = \frac{-5x + 10}{2}$

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

3) $x - 3y = 12$

$-x \quad -x$

$\frac{-3y}{-3} = \frac{-x + 12}{-3}$

$y = \frac{1}{3}x - 4$

4) $2x - y = -1$

$-2x \quad -2x$

$\frac{-y}{-1} = \frac{-2x - 1}{-1}$

$y = 2x + 1$

5) $x - 2y = -6$

$-x \quad -x$

$\frac{-2y}{-2} = \frac{-x - 6}{-2}$

$y = \frac{1}{2}x + 3$

6) $2x + 3y = 15$

$-2x \quad -2x$

$\frac{3y}{3} = \frac{-2x + 15}{3}$

$y = -\frac{2}{3}x + 5$

When you are done, get the HW from your teacher.