

Switching Forms

What do you notice about the equations
Standard below? S.I.F.

$$8x - 4y = 20$$

$$y = 2x - 5$$

$$\begin{array}{r} -4y = 20 - 8x \\ \frac{-4y}{-4} = \frac{20}{-4} - \frac{8x}{-4} \\ y = -5 + 2x \end{array}$$

$$\begin{array}{r} 4x + 3y = 8 \\ -4x \quad -4x \\ \hline 3y = 8 - 4x \\ \frac{3y}{3} = \frac{8}{3} - \frac{4x}{3} \\ y = \frac{8}{3} - \frac{4}{3}x \end{array}$$

Steps:

- 1) Move the "x" to the other Side.
- 2) Divide by the Coeff. next to the "y".

$$16x + 9y = 40$$

Steps:

- 1) Move the x to the other side using inverse operations
- 2) Divide by the coefficient attached to the y

$$13x - 7y = -35$$

Steps:

- 1) Move the x to the other side using inverse operations
- 2) Divide by the coefficient attached to the y

$$5x + y = -22$$

Steps:

- 1) Move the x to the other side using inverse operations
- 2) Divide by the coefficient attached to the y

LET'S PLAY A GAME!!!

$$15x + 8y = 56$$

ANSWER

$$y = -15/8x + 7$$

$$x + y = 7$$

ANSWER

$$y = -x + 7$$

$$2x - 3y = -6$$

ANSWER

$$y = 2/3x + 2$$

$$11x - 4y = -24$$

ANSWER

$$y = 11/4x + 6$$

$$4x + y = 5$$

ANSWER

$$y = -4x + 5$$

$$X - 4y = 12$$

ANSWER

$$y = 1/4x - 3$$

$$12x - 5y = -44$$

ANSWER

$$y = 12/5x + 44/5$$

$$x + 7y = -7$$

ANSWER

$$y = -1/7x - 1$$

WRITING
EQUATIONS FROM
WORD PROBLEMS

Hector and Jeremy want to make some CD's for their band, Goat Cheese Pizza. Jeremy figures it would cost \$399.00 to produce 1000 CDs. Hector figures it would cost \$54.25 to produce 15 CDs. They both are correct. You are going to write an equation to find the cost (C) of producing CDs (n).

Mr. Fretheim put 300 pounds of yard waste in the back of his pickup truck to take it to the composting facility. When the pickup was loaded with this yard waste, the rear bumper was $13\frac{1}{4}$ inches from the ground. On the way home from the composting facility he stopped at Concrete Industries to buy some gravel. With 1200 pounds of gravel in the back the rear bumper was 11 inches off the ground. You are going to be asked to write an equation for how far the bumper of the pickup is off the ground.

$(300, 13.25)$ $\frac{11 - 13.25}{1200 - 300} = \frac{-2.25}{900} = -.0025$
 $(1200, 11)$
 $Y = -.0025x + 14$
 $11 = -.0025(1200) + b$
 $11 = -3 + b$
 $+3 \quad +3$
 $14 = b$
 $13.25 = -.0025(300) + b$
 $13.25 = -.75 + b$
 $+.75 \quad +.75$
 $b = 14$

Mrs. Pritchler enters her classroom at 7:00 am and finds the temperature to be 86 degrees. She immediately turns on the air conditioner. By noon the temperature was down to 76 degrees. The temperature went down at an even rate while the air conditioning was running. Write an equation to find the temperature in Mrs. Pritchler's room.

$(7, 86)$ $\frac{76 - 86}{12 - 7} = \frac{-10}{5} = -2$
 $(12, 76)$
 $Y = -2x + b$
 $86 = -2(7) + b$
 $86 = -14 + b$
 $+14 \quad +14$
 $100 = b$
 $Y = -2x + 100$

Anahi has noticed that how long it takes to get food at her favorite restaurant depends on how many people are in her party. If she just goes with one other person they get their food in about 10 minutes. If she goes with her family, the five of them will take about 16 minutes to get served. You are going to be asked to find an equation to find how long it takes to get served at Anahi's favorite restaurant.

$(2, 10)$ $\frac{16 - 10}{5 - 2} = \frac{6}{3} = 2$
 $(5, 16)$
 $Y = 2x + b$
 $16 = 2(5) + b$
 $16 = 10 + b$
 $-10 \quad -10$
 $6 = b$

1. Suppose a 5-minute overseas call costs \$5.91 and a 10-minute call costs \$10.86. The cost of the call and the length of the call are related.

$(5, 5.91)$ $\frac{10.86 - 5.91}{10 - 5} = .99$
 $(10, 10.86)$
 $Y = .99x + b$
 $10.86 = .99(10) + b$
 $b = .96$

The mathematics department sponsors Math Family Fun Night every year. In the first year, there were 35 participants. In the third year there were 57 participants.

$Y = 11x + 24$

Word problems are the hard part....let's try it without them.

$(9, 120) (12, 141)$

$(1, 6) (3, -4)$

$(0, -1) (3, -5)$