Warm Up

Solve for x:

$7x + 5(4 - 3x) = 15 - 2(3x - 4)$

$7x + 20 - 15x = 15 - 6x + 8$
$\quad -20 \qquad\qquad\qquad -20$

$7x - 15x = -5 - 6x + 8$
$+6x \qquad\qquad\qquad +6x$

$-2x = -5 + 8$
$+5 \qquad +5$

$-2x + 5 = 8$
$\qquad -5 \quad -5$

$-2x = 3$
$\overline{-2} \quad \overline{-2}$

$x = -\dfrac{3}{2}$

Warm Up

Solve for x:

$$7x + 5(4 - 3x) = 15 - 2(3x - 4)$$

$$7x + 20 - 15x = 15 - 2(3x - 4)$$

$$-8x + 20 = 15 - 6x + 8$$

$$-8x + 20 = 23 - 6x$$
$$+8x \qquad\qquad +8x$$
$$\overline{}$$

$$20 = 23 + 2x$$
$$-23 \quad -23$$
$$\overline{}$$
$$\frac{-3}{2} = \frac{2x}{2}$$

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

What did your graph look like for Problem 1.1 B?

Number of Caps Sold (vertical axis)

Axis values: 80, 60, 40, 20, 0 (C axis)

Horizontal axis values: 0, 20, 40, 60, 80, 100, 120 (S axis)

Number of T-Shirts Sold

Solutions:
(20,50)
(40,40)
(60,30)
(80,20)
(100,10)
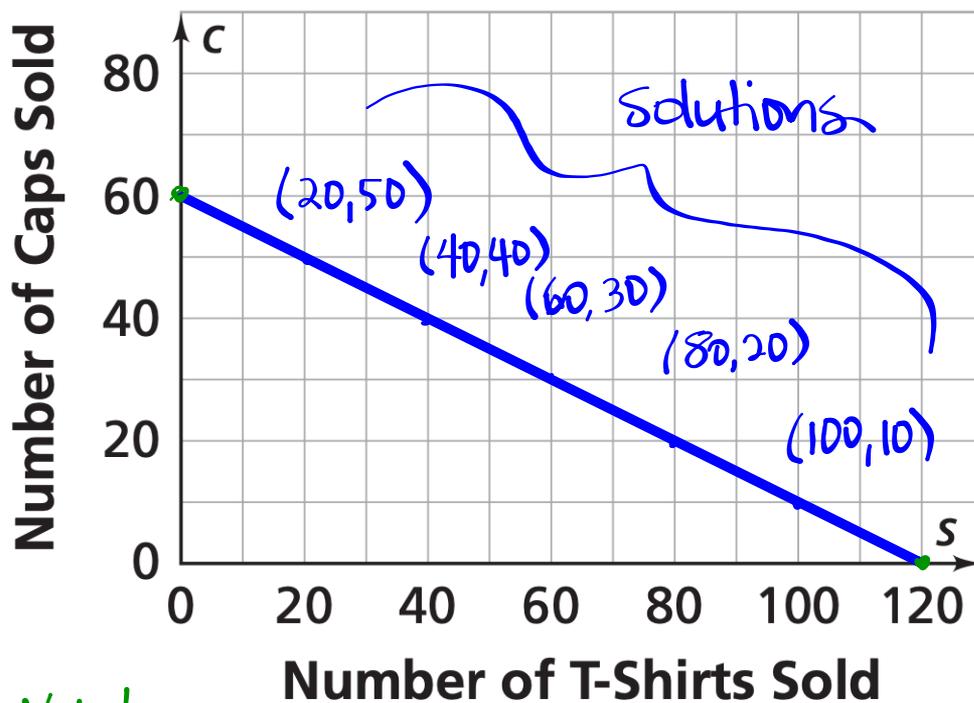
y-Int
$600 = 5(0) + 10c$
$\frac{600}{10} = \frac{10c}{10}$
$60 = c$ (0,60)

$600 = 5s + 10c$

x-int
$600 = 5s + 10(100)$
$\frac{600}{5} = \frac{5s}{5}$ (120,0)
$120 = s$

Fundraiser Sales

(Caps Sold vs T-Shirts Sold graph)

(s, c)
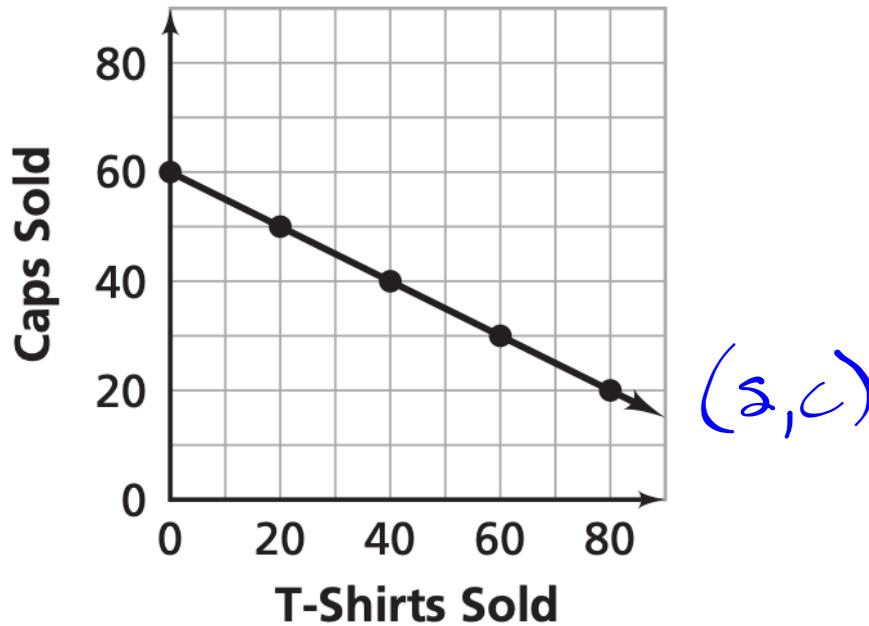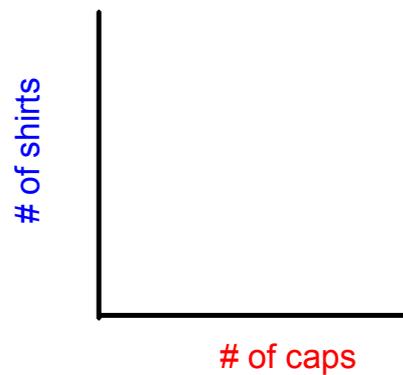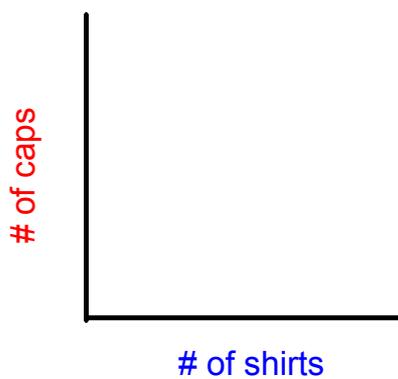
3. Use the graph to find three other ordered pairs that meet the profit goal.

4. Suppose the number of T-shirts sold was on the vertical axis and the number of caps sold was on the horizontal axis. Would the solutions change? Explain.

# of caps (vertical), # of shirts (horizontal)

# of shirts (vertical), # of caps (horizontal)

Solutions are written:

$(\textbf{s}, \textbf{c})$

$(\textbf{c}, \textbf{s})$

What did we learn yesterday when we graphed equations written in Ax + By = C form?

$$5a + 10c = 600$$

Linear Equation we know:

$$y = mx + b$$

↑ slope

↖ y int

Practice

How do we write equations in Slope - Intercept Form?

We need to isolate y

$$3x + 2y = 12$$

$$\underline{-3x \qquad\qquad -3x}$$

$$\frac{2y}{2} = \frac{-3x}{2} + \frac{12}{2}$$

$$\boxed{y = -\frac{3}{2}x + 6}$$ Slope-intercept form

$$7x - 3y = 5$$

$$\underline{-7x \qquad\qquad -7x}$$

$$\frac{-3y}{3} = \frac{-7x}{3} + \frac{5}{3} \implies \frac{-3y}{-3} = \frac{-7x}{-3} + \frac{5}{-3}$$

$$\frac{-y}{-1} = \frac{-7}{3}x + \frac{5}{3} \qquad\qquad y = \frac{7}{3}x - \frac{5}{3}$$

$$\frac{-y}{-1} = \frac{\frac{-7}{3}}{-1}x + \frac{\frac{5}{3}}{-1}$$

$$y = \frac{7}{3}x - \frac{5}{3}$$

Writing Linear Equations

Write the slope-intercept form of the equation of each line.

1) $3x - 2y = -16$

2) $13x - 11y = -12$

3) $9x - 7y = -7$

4) $x - 3y = 6$

5) $6x + 5y = -15$

6) $4x - y = 1$

7) $11x - 4y = 32$

8) $11x - 8y = -48$

Writing Linear Equations

Write the slope-intercept form of the equation of each line.

1) $3x - 2y = -16$

$$\frac{-3x \qquad -3x}{\underset{-2}{-2y} = \underset{-2}{-3x} \underset{-2}{-16}}$$

$$y = \frac{3}{2}x + 8$$

2) $13x - 11y = -12$

$$\frac{-13x \qquad -13x}{\underset{-11}{-11y} = \underset{-11}{-13x} \underset{-11}{-12}}$$

$$y = \frac{13}{11}x + \frac{12}{11}$$

3) $9x - 7y = -7$

$$\frac{-9x \qquad -9x}{\underset{-7}{-7y} = \underset{-7}{-9x} \underset{-7}{-7}}$$

$$y = \frac{9}{7}x + 1$$

4) $x - 3y = 6$

$$\frac{-x \qquad -x}{\underset{-3}{-3y} = \underset{-3}{-x} \underset{-3}{+6}}$$

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

5) $6x + 5y = -15$

$$\frac{-6x \qquad -6x}{\underset{5}{5y} = \underset{5}{-6x} \underset{5}{-15}}$$

$$y = -\frac{6}{5}x - 3$$

6) $4x - y = 1$

$$\frac{-4x \qquad -4x}{(-1)\left[-y = -4x + 1\right]}$$

$$y = 4x - 1$$

7) $11x - 4y = 32$

$$\frac{-11x \qquad -11x}{\underset{-4}{-4y} = \underset{-4}{-11x} \underset{-4}{+32}}$$

$$y = \frac{11}{4}x - 8$$

8) $11x - 8y = -48$

$$\frac{-11x \qquad -11x}{\underset{-8}{-8y} = \underset{-8}{-11x} \underset{-8}{-48}}$$

$$y = \frac{11}{8}x + 6$$