WARM-UP...

The student council sponsored a dance. A ticket cost $5 and the cost for the DJ was $300.

a) Write an equation for the profit, P dollars, on the sale of t tickets.

b) Suppose 123 people bought tickets. What was the profit?

c) Suppose the profit was $350. How many people bought tickets?

d) Could the profit be exactly $146? Justify the answer.

a) $P = 5t - 300$

b) $P = 5(123) - 300$
$= 615 - 300$
$= 315$

c) $350 = 5t - 300$ (+300, +300)
$\frac{650}{5} = \frac{5t}{5}$
$130 = t$

d) $146 = 5t - 300$ (+300, +300)
$\frac{446}{5} = \frac{5t}{5}$
$89.2 = t$
No

6.4 Slope-Intercept Form of the Equation for a Linear Function

Finding the Equation of a Line

Method #1: Slope - Y Intercept Method

$$y = mx + b$$

Need: (1) the slope & (2) the *y*-intercept

Example... Determine the equation of a line that passes through the point (0, -5) and is perpendicular to the line $2x + 3y = 6$.

$2x + 3y = 6$
$\frac{3y}{3} = -\frac{2x}{3} + \frac{6}{3}$
$y = -\frac{2}{3}x + 2$

$m = -\frac{2}{3}$
$\perp m = \frac{3}{2}$
$b = -5$

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

YOUR TURN...

1. Determine the slope, the x intercept and the y intercept of the following line...

$6x - 3y + 9 = 0$

x-int let y=0
$6x - 3(0) + 9 = 0$
$\frac{6x}{6} = \frac{-9}{6}$
$x = -\frac{3}{2}$ $(-\frac{3}{2}, 0)$

y int let x=0
$6(0) - 3y + 9 = 0$
$\frac{-3y}{-3} = \frac{-9}{-3}$
$y = 3$ $(0, 3)$

$6x - 3y + 9 = 0$
$\frac{-3y}{-3} = \frac{-6x}{-3} - \frac{9}{-3}$
$y = 2x + 3$
$m = 2$

2. Determine the equation for each of the following lines...
Put the equation in the **slope - y intercept form**.

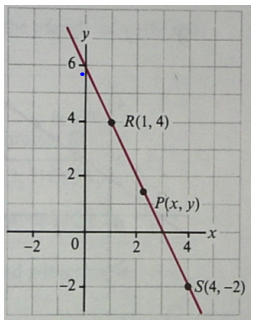
$y = mx + b$

a) passes through the points (-4, 6) & (0, -8).

$m = \frac{y_2 - y_1}{x_2 - x_1}$
$= \frac{6 - (-8)}{-4 - 0}$
$= \frac{14}{-4}$
$= -\frac{7}{2}$

$b = -8$
$y = mx + b$
$y = -\frac{7}{2}x - 8$

b)



$m = \frac{\text{rise}}{\text{run}}$
$= \frac{-2}{1}$
$= -2$

$b = 6$
$y = mx + b$
$y = -2x + 6$

Two worksheets...

Graphing Lines using intercepts

Solving for x and y-intercepts then graphing

p. 362 #7, 15, 21

Attachments

Graphing lines using intercepts.pdf

Solving for X and Y Intercepts Graphing.pdf