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) $350 \overset{+300}{=} 5t - 300 \overset{+300}{}$

$\frac{650}{5} = \frac{5t}{5}$

$t = 130$ tickets

d) $146 \overset{+300}{=} 5t - 300 \overset{+300}{}$

$\frac{446}{5} = \frac{5t}{5}$

$t = 89.2$

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 $2x + 3y = 6$.

$\uparrow$ y-int

$2x + 3y = 6$

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

$y = \left(-\frac{2}{3}\right)x + 2$

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

$\perp m = \frac{3}{2}$

$y = mx + b$

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

YOUR TURN...

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

$6x - 3y + 9 = 0$ y int = 3 x int let y = 0

$-3y = -6x - 9$

$\frac{-3y}{-3} = \frac{-6x}{-3} - \frac{9}{-3}$

$y = 2x + 3$

$m = 2$

$6x - 3(0) + 9 = 0$

$6x = -9$

$x = -\frac{3}{2}$ $(-\frac{3}{2}, 0)$

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

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

$m = \frac{y_2 - y_1}{x_2 - x_1}$

$= \frac{6 - (-8)}{-4 - 0}$

$= \frac{14}{-4}$

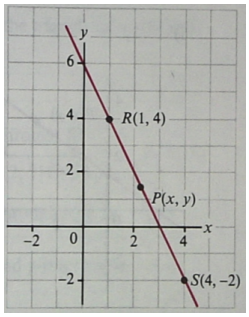
$= -\frac{7}{2}$

$y = mx + b$

y int (6)

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

b)



y-int = 6 $y = mx + b$

$m = \frac{\text{rise}}{\text{run}}$

$= \frac{-6}{3}$

$= -2$

$y = -2x + 6$

Two worksheets...

Graphing Lines using intercepts

Solving for x and y-intercepts then graphing

p. 362 #7, 15, 21

Complete puzzle sheets from last week.

Page 3 of the worksheet...

$x - 2y = 6$

x-int let $y = 0$

$x - 2(0) = 6$

$x = 6$ $(6, 0)$

y-int let $x = 0$

$0 - 2y = 6$

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

$y = -3$

$(0, -3)$

Attachments

Graphing lines using intercepts.pdf

Solving for X and Y Intercepts Graphing.pdf