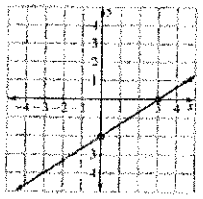
4.3 Notes ~ "Graph Using Intercepts"

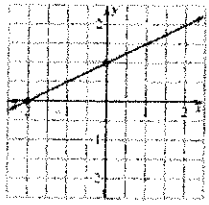
x-intercept:
- The x-coordinate of the point where the graph crosses the x-axis

y-intercept:
- The y-coordinate of the point where the graph crosses the y-axis

I. Given a Graph, find the x & y intercepts

1. 

X = 3
y = -2

2. 

X = -2
y = 2

Plug in 0 for the opposite & solve!

II. Given an equation, find the x and y intercepts.

3. $y = 2x + 4$

$0 = 2x + 4$
$-4 \quad -4$
$-2 = x$

$y = 2(0) + 4$
$y = 4$

4. $3x - 4y = 24$

$3x - 4(0) = 24$
$3x = 24$
$x = 8$

$3(0) - 4y = 24$
$-4y = 24$
$y = -6$

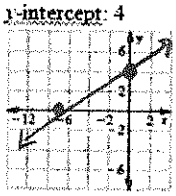
5. $-3x = 5y + 10$

$-3x = 5(0) + 10$
$-3x = 10$
$x = -10/3$

$-3(0) = 5y + 10$
$-10 \quad -10$
$-10 = 5y$
$-2 = y$

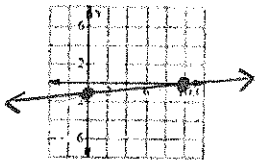
III. Given intercepts, graph the line

6. x-intercept: −7
y-intercept: 4



pts. (-7, 0)
(0, 4)

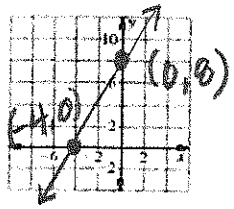
7. x-intercept: 10
y-intercept: −1



pts. (10, 0)
(0, -1)

IV. Given the Equation, find the intercepts then graph the line

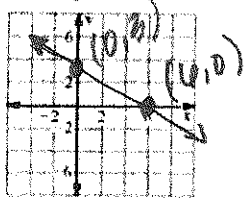
16. $y = 8 + 2x$



$0 = 8 + 2x$
$-8 = 2x$
$-4 = x$ (-4, 0)

$y = 8 + (2)(0)$
$y = 8$ (0, 8)

18. $6y + 3x = 18$



$6y + 3(0) = 18$
$6y = 18$
$y = 3$

$6(0) + 3x = 18$
$3x = 18$
$x = 6$

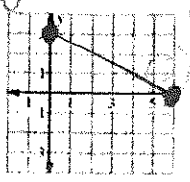
V. Story Problem

3 inches of snow fell on the ground and every day one-half inch of snow melted. The equation to represent this is:

$Y = -(1/2)x + 3$

(Where x represents days and Y represents inches of snow.)

Find the x and y-intercepts and graph the line segment. Note: not a line



What does the x-intercept represent?
What does the y-intercept represent?

$y = -\frac{1}{2}(0) + 3$
$y = 3$

$0 = -\frac{1}{2}x + 3$
$(-2)(3) = -\frac{1}{2}x(-2)$
$6 = x$

- X-int = the snow was completely melted at 6 days
- y-int = there was 3 inches of snow to start