

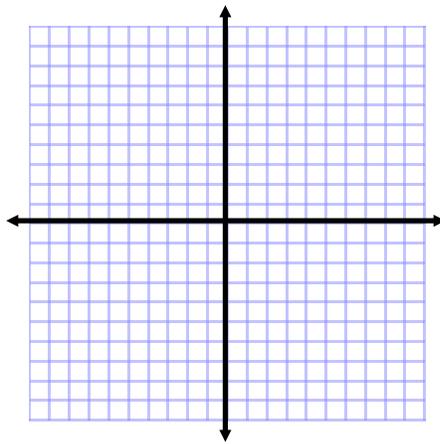
MATH 1010 ~ Intermediate Algebra

Chapter 3: GRAPHS AND FUNCTIONS

Section 3.2: Graphs of Equations

Objectives:

- ★ Sketch graphs of equations using the point-plotting method.
- ★ Find and use x- and y- intercepts to sketch graphs.
- ★ Write an equation for an application and sketch the graph.



$$x+2y = 4$$

x - intercept

y - intercept

plot points

Graphing an equation:

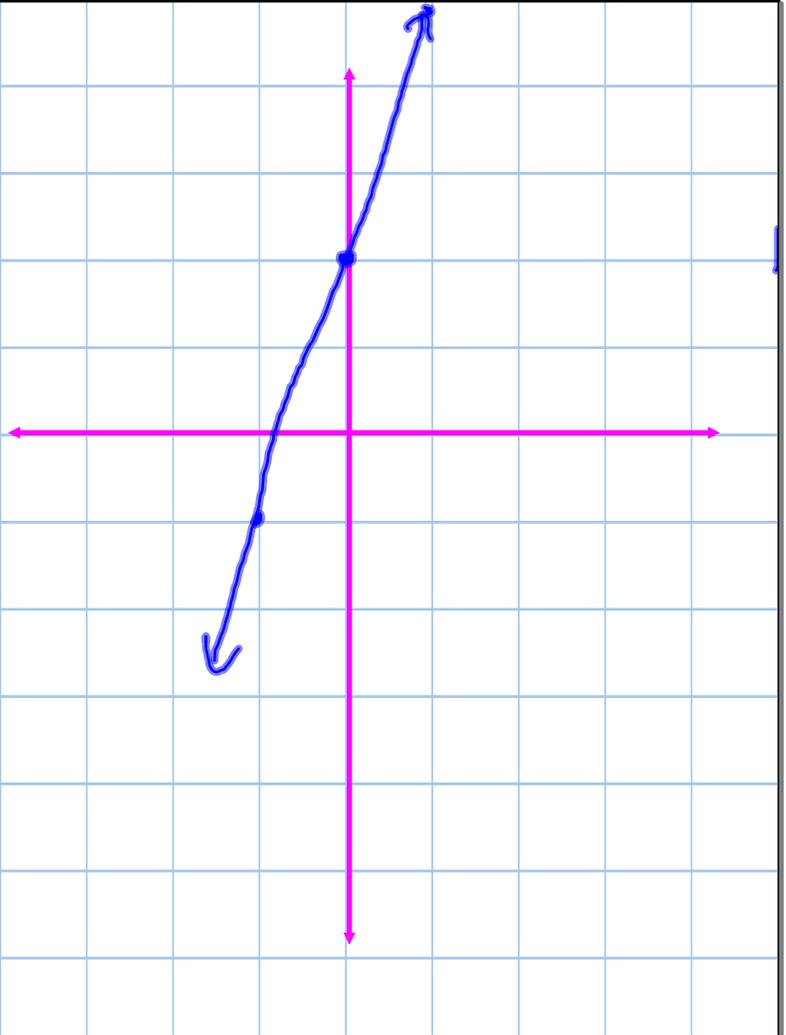
$$y = 3x + 2$$

x	y
0	2
1	5
-1	-1

$$y = 3(0) + 2$$

$$y = 3(1) + 2$$

$$y = 3(-1) + 2$$



y-intercept \Rightarrow
 $(0, b)$

x-intercept \Rightarrow pt where graph
 (line) crosses the x-axis
 $(a, 0)$

① EXAMPLE

Find the x-intercept, the y-intercept and one other point,
 then sketch the graph.

one more pt:
 $(1, 1)$

a) $y = 4 - 3x$ (linear) $y = 4 - 3(1)$
 $y = 1$

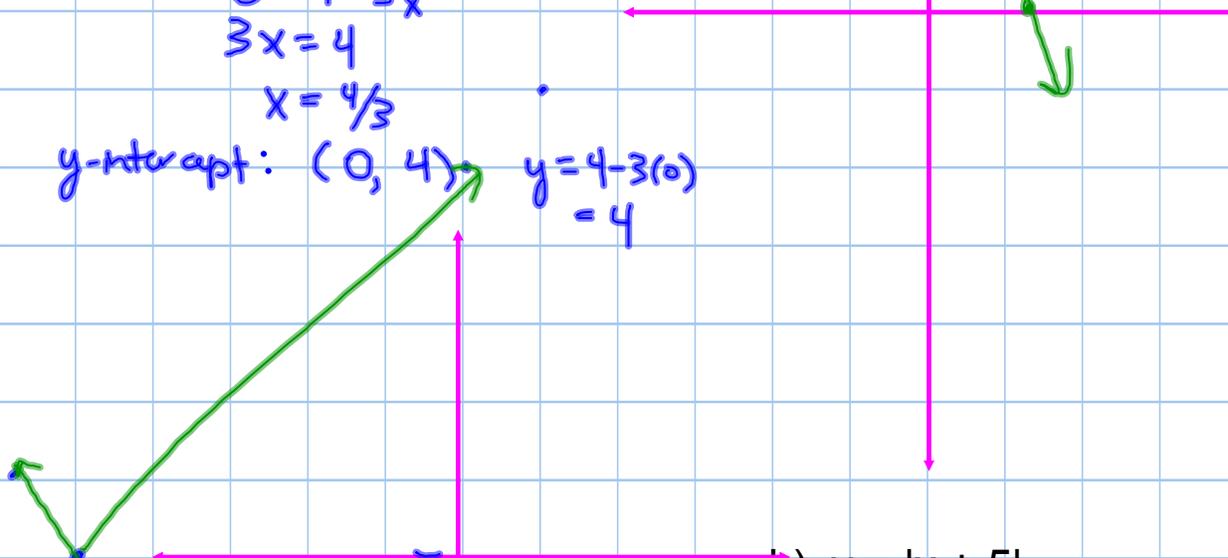
x-intercept: $(\frac{4}{3}, 0)$

$$0 = 4 - 3x$$

$$3x = 4$$

$$x = \frac{4}{3}$$

y-intercept: $(0, 4)$ $y = 4 - 3(0)$
 $= 4$



x	y
-5	0
0	5
1	6
-6	1

$$y = |x + 5|$$

b) $y = |x + 5|$

x-int: $(-5, 0)$

$$0 = |x + 5|$$

$$x + 5 = 0$$

$$-(x + 5) = 0$$

$$x + 5 = 0$$

$$x = -5$$

y-int: $(0, 5)$

$$y = |0 + 5| = 5$$

one more pt: $(1, 6)$

$$y = |1 + 5| = 6$$

$$c) y = 3 - x^2$$

$$x\text{-int: } (\sqrt{3}, 0) \quad (-\sqrt{3}, 0)$$

$$0 = 3 - x^2$$

$$x^2 = 3$$

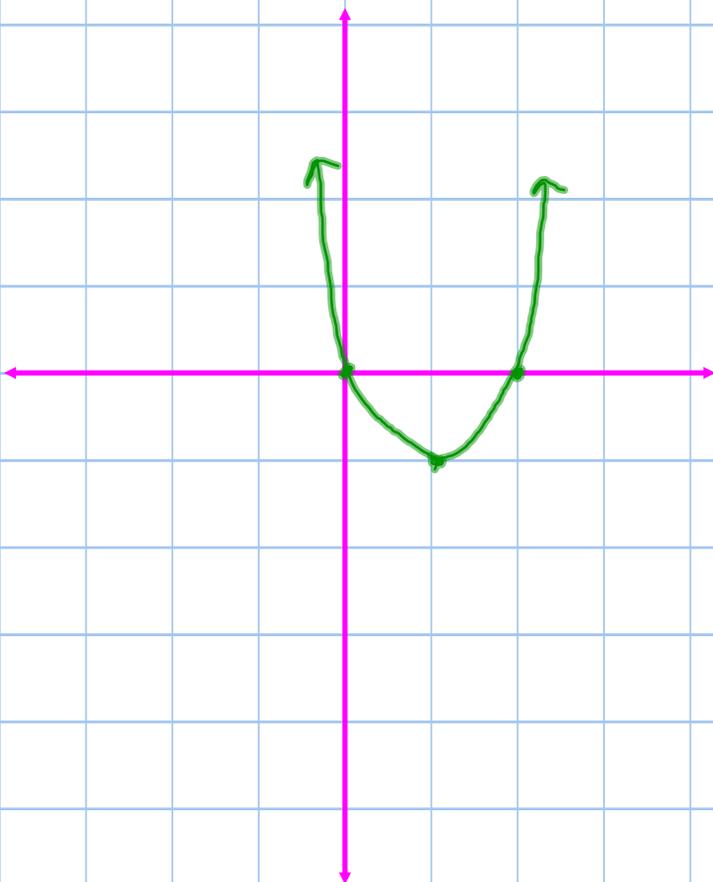
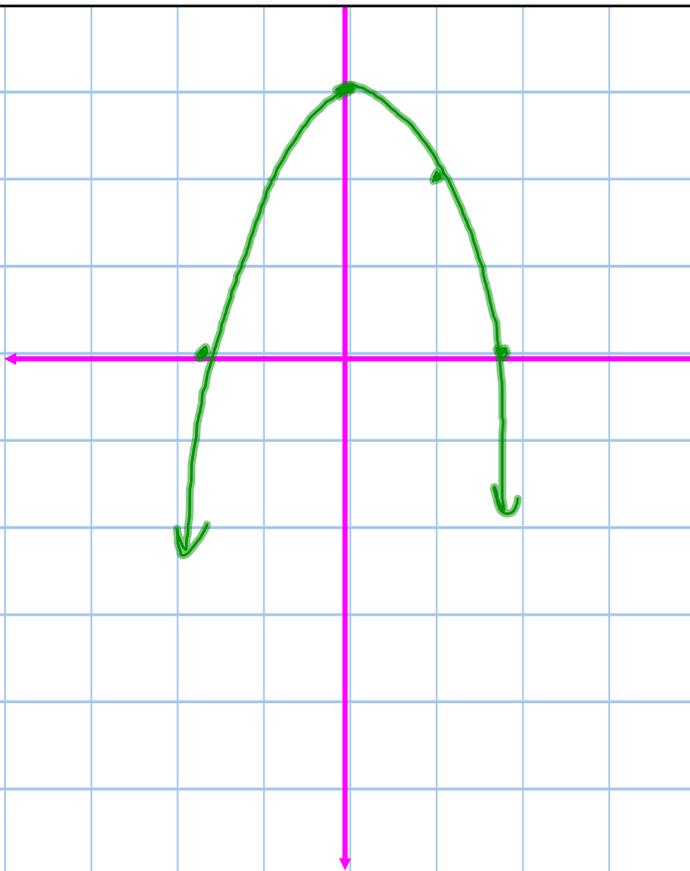
$$x = \pm\sqrt{3}$$

$$y\text{-int: } (0, 3)$$

$$y = 3 - 0 = 3$$

$$\text{one more pt: } (1, 2)$$

$$y = 3 - 1^2 = 2$$



$$y = x^2 - 2x$$

$$d) y = x(x-2)$$

$$x\text{-int: } (0, 0) \quad (2, 0)$$

$$0 = x(x-2)$$

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

$$x = 2$$

$$y\text{-int: } (0, 0)$$

$$y = 0(0-2) = 0$$

$$\text{one more pt:}$$

$$(1, -1)$$

$$y = 1(1-2) = -1$$

② EXAMPLE

Write an equation and draw the graph of it.

Zeno has \$15.00 and earns \$8.00 each week. How much will he have at the end of x weeks?

$x = \#$ weeks that Zeno works
 $y = \text{amt } \$ \text{ Zeno has (at } x \text{ weeks)}$

$$15 + 8x = y$$

Points

x	y	
0	15	$15 + 0 = y$
1	23	$15 + 8 = 23$
2	31	

