Homework Review - 10.2

Graph quadratics ax^2+bx+c

$\frac{-b}{2a}$ find axis of symmetry

Use axis of sym. to find vertex

plot random points / reflect

Find minimum/maximum

find vertex

Use sign of "a" to classify as max or min.

POP QUIZ:

$-2x^2+4x-6$

thinner than parent

frownie

1. Graph
2. Identify the maximum or minimum

$-2x^2+4x-6$

$(-2)x^2+4x-6$

$x=\frac{-b}{2a}=\frac{-4}{2(-2)}=\frac{-4}{-4}=1$

$-2(1)^2+4(1)-6$

$-2+4-6=-4$

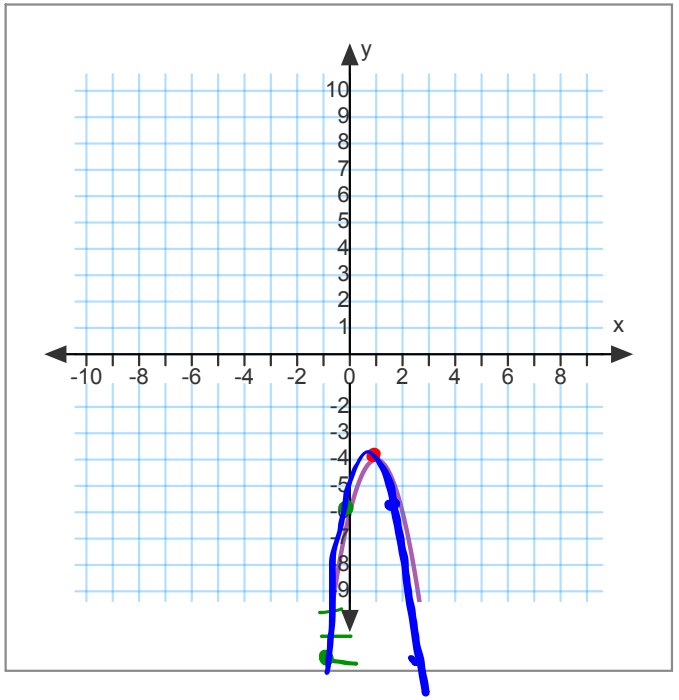
$(1,-4)$

max.

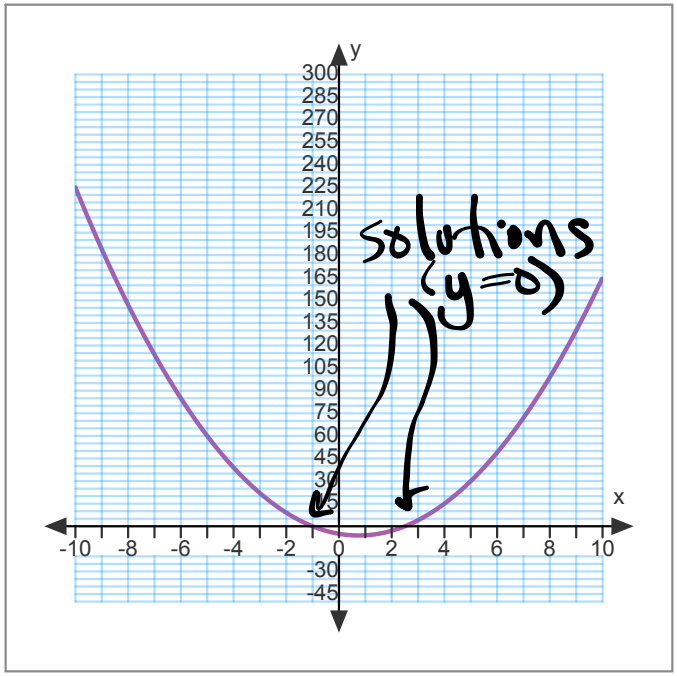
x	y
0	-6
-1	-12

$-2(-1)^2+4(-1)-6$

$-2+-4-6=-12$



Solving Quadratics by Graphing



ALSO: The "zeroes" of a quadratic function

What are the solutions to a quadratic (polynomial)? where $y=0$ $ax^2+bx+c=0$

Where will these show up on a graph? Where it crosses the x axis

What are they called on a graph?

X-intercepts

(y=0)

$y = 2x^2 - 3x - 5$

Find Zeroes:

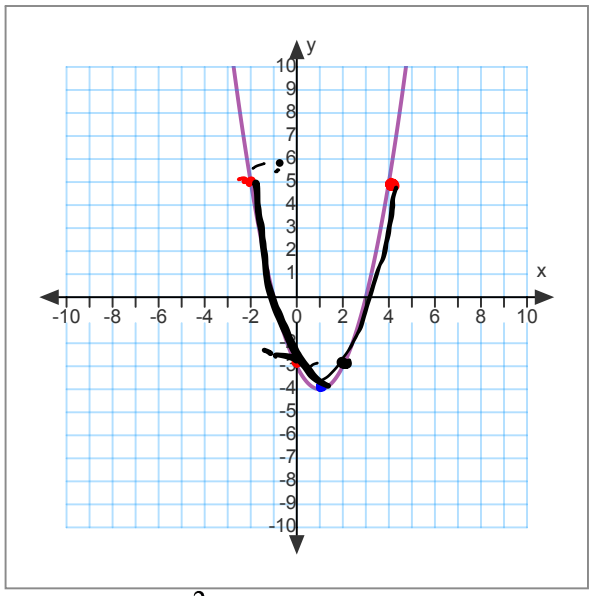
$x = -1$

$x = 2.5$

How to Find Solutions by Graphing

$ax^2+bx+c=0$

$x^2-2x=3$ $\quad (x^2-(2x)-3=0)$



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

Graph using the method we've learned $\frac{-b}{2a}=\frac{-(-2)}{2(1)}=1$ $(1,-4)$

$1^2-2(1)+-3=-4$

Be VERY CAREFUL (use graph paper and curve templates)

$x=2$ $2^2-2(2)-3=-3$ $x=4$ $4^2-2(4)-3)=5$

Identify the x-intercepts

$x=-1$ or $x=3$

Check your answers

$x^2-2x-3=0$

$(-1)^2-2(-1)-3=0$

$1+2-3=0$

$\checkmark\ 0=0$

$x^2-2x-3=0$

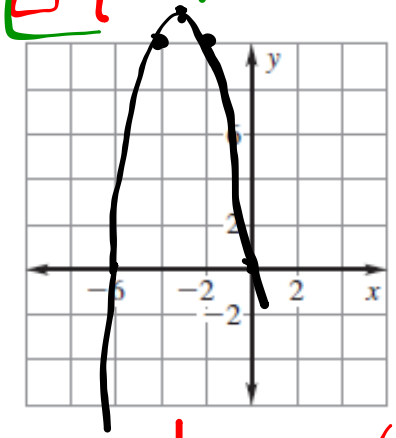
$3^2-2(3)-3=0$

$9-6-3=0$

$0=0\checkmark$

$y = -x^2 - 6x$

13. $-x^2 - 6x = 0$



$x = \frac{-b}{2a} = \frac{-(-6)}{2(-1)}$

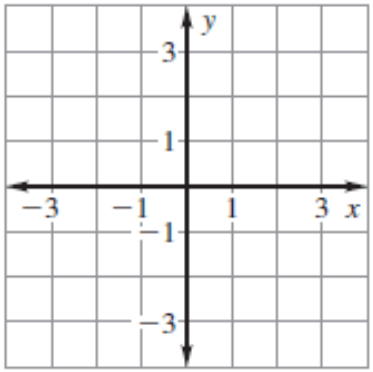
$= \frac{6}{-2} = -3$

$y = -x^2 - 6x$

$= -(-3)^2 - 6(-3)$

$= -9 + 18 = 9$

14. $2x^2 = 2$



$y = -(-2)^2 - 6(-2)$

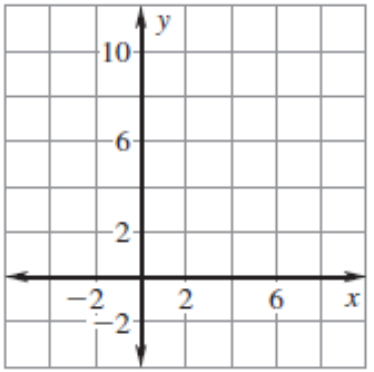
$= -4 + 12 = 8$

$y = -(0)^2 - 6(0)$

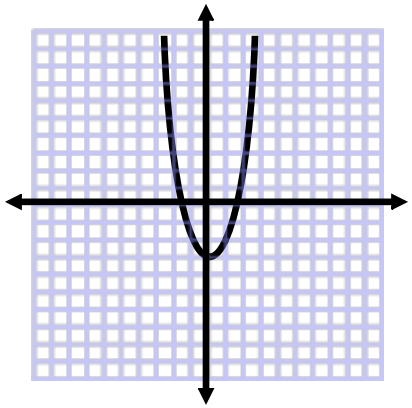
$= 0$

$x = 0, \; x = -6$

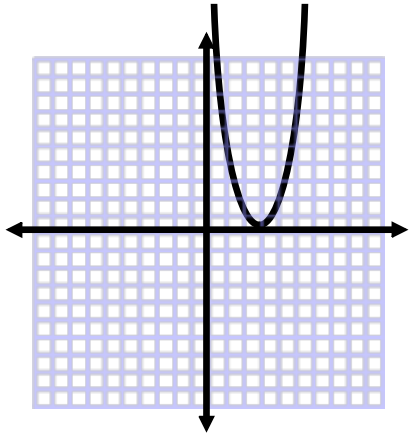
15. $x^2 - 7x + 10 = 0$



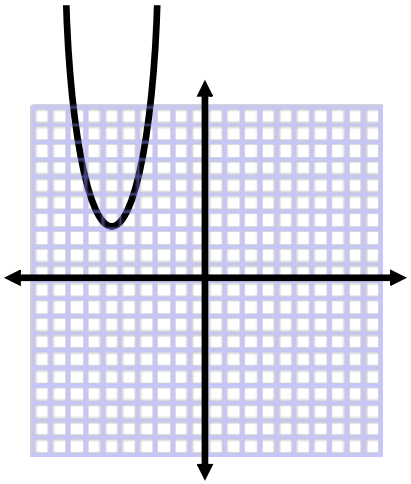
Number of Solutions of a Quadratic:



2 sol.



1 sol.

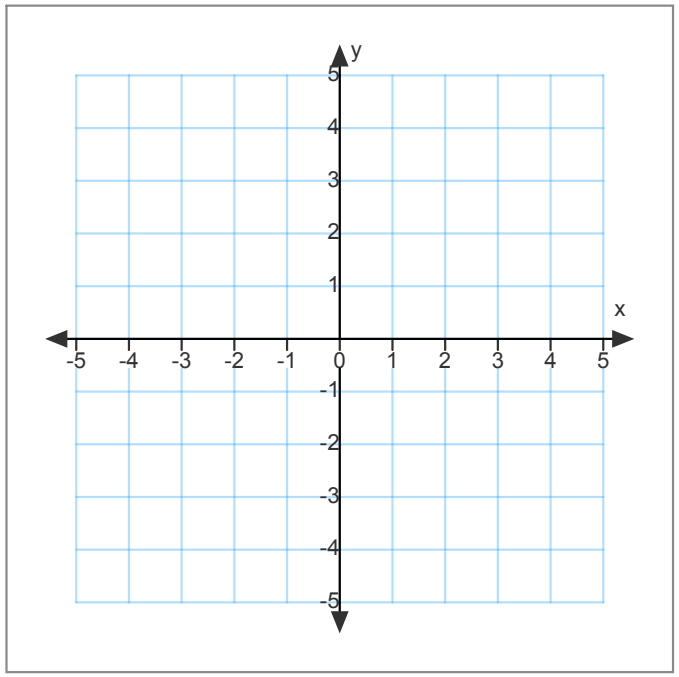


no sol.

Finding the zeros of a quadratic function?

$$f(x) = x^2 + 6x - 7$$

Approximating the zeros of a quadratic function



$$f(x) = x^2 + 4x + 1$$

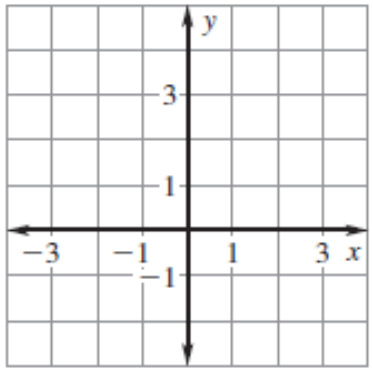
1. Graph the function
2. Find the boundaries of the x-intercepts (zeros)
3. Estimate by using tables to find the x values that give you the y values closest to 0 (use 0.1 increments)

X	Y

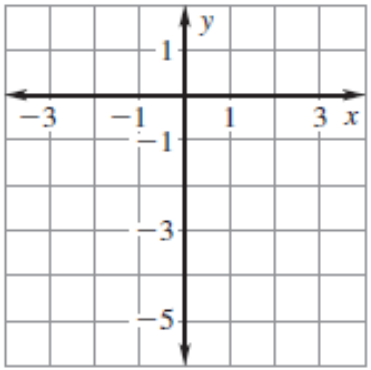
X	Y

$$x^2 + 4x + 1$$

13. $f(x) = -2x^2 + 5x + 1$



14. $f(x) = 3x^2 - 5$



Homework:

p. 647, 3-18 by 3, 22-~~43~~ 34 by 3, 50, 53

- check out a curve template
- Know how to graph quadratics
- assessments
  - → linear systems work sample
  - → factoring skills test