


Lesson 5: Graphing Quadratic Functions

a parabola 

$$y = ax^2$$

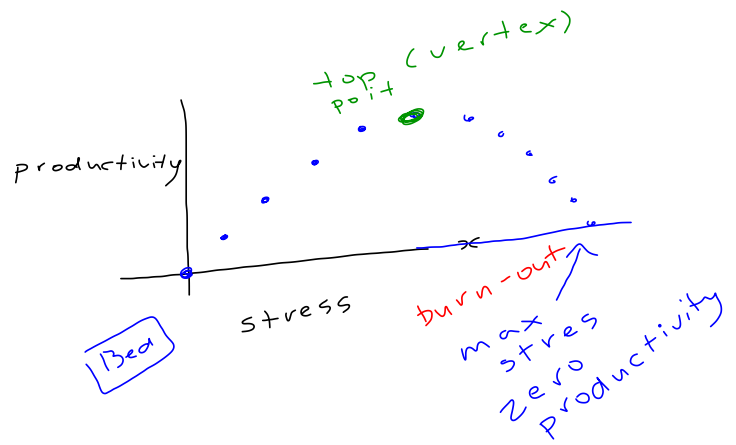
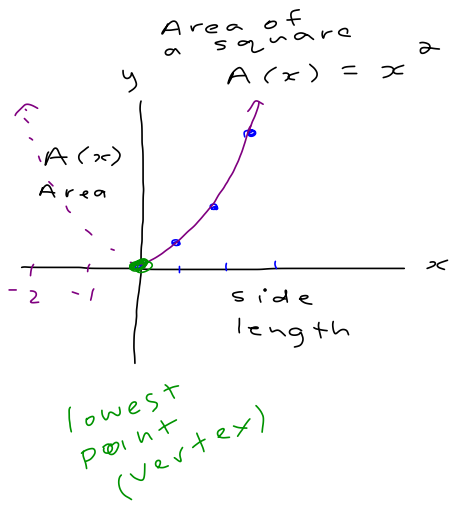
┌──────────┐ variables
└──────────┘ parameter (not slope)

$$f(x) = ax^2$$

"f at x"
y

- y is a function of x
- y depends on x
- y is proportional to the square of x.

Examples of Quadratic Relations (function)



graph

$$f(x) = 2x^2$$

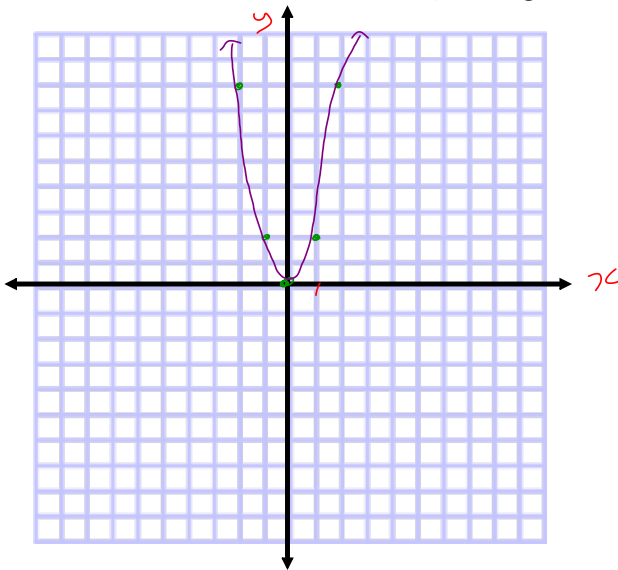
$$f(x) = ax^2$$



step iv. Plot points and draw curve.

x	y
-2	8
-1	2
0	0
1	2
2	8

$$f(1) = 2$$



step i. identify which function and write standard equation

step ii. identify a and see if parabola is up or down.

$a = 2$ if $a > 0$
 if $a < 0$

step iii. Construct Table of values.

x	y	find
-2	?	$f(-2)$ find y when $x = -2$
-1	?	$f(x) = 2x^2$
0	0	$f(-2) = 2(-2)^2$
1	?	$f(-2) = 2(4)$
2	?	$f(-2) = 8$

find $f(-1)$
 $f(x) = 2x^2$
 $f(-1) = 2(-1)^2$
 $f(-1) = 2(1)$
 $f(-1) = 2$

$$f(x) = -\frac{1}{2}x^2$$

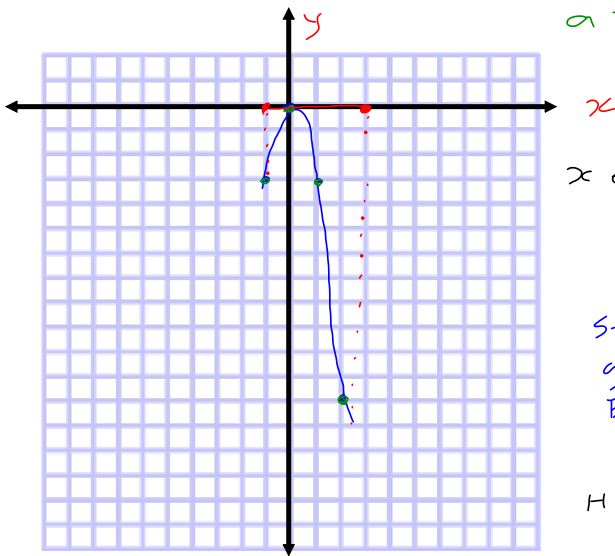
graph

$$f(x) = -3x^2$$

such that $x \in [-1, 3[$

interval group
 belongs to lowest # high #

$$a = -3$$



$$x \in [-1, 3[$$

Step i. Graph function normally

Step ii. Apply restriction by finding given interval on x-axis. Erase anything left or right of that on parabola.

HWK: pg 82 # 5 a) b) c)

pg 86 # 2

pg 81 # 3 a) 4 a) b)

HANDOUTS: graphing piecewise pg 4-6 is BONUS