

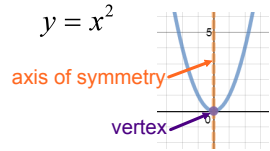
# Alg I 9.1 notes.notebook

## 9.1 Quadratic Graphs and Their Properties

The **BIG** Idea...

A quadratic is a function that can be written in the standard form  $y = ax^2 + bx + c$ .

The parent function

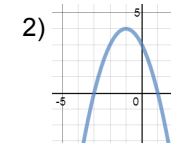
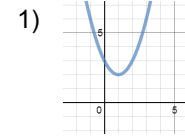


When graphing from standard form:

~If  $a > 0$ , the parabola opens upward and the vertex is a minimum

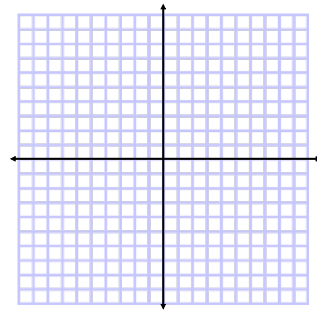
~If  $a < 0$ , the parabola opens downward and the vertex is a maximum

Identify the vertex and tell if it is a maximum or minimum.



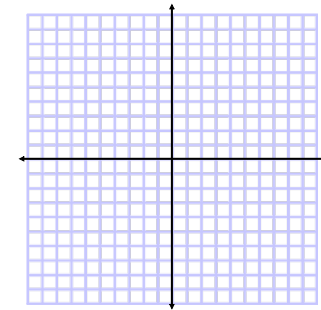
Graph. Also, identify the domain and range.

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



Graph. Also, identify the domain and range.

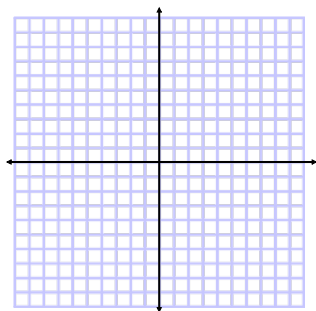
3)  $y = 3x^2$



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Graph. Also, identify the domain and range.

$$4) y = -\frac{1}{2}x^2$$

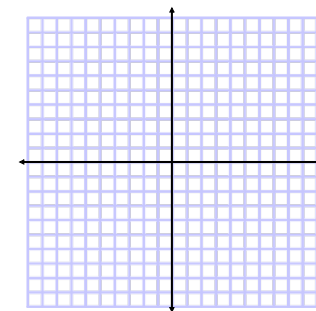


7) As Mr. Hail walks on the Golden Gate bridge, he drops a quarter to Mr. Thornburg who is swimming in the bay. The bridge is 220 ft. above the water. The quarter travels at the pathway  $y = -16x^2 + 220$ . How long does it take the quarter to hit Mr. Thornburg? (Hint: use desmos)

3.71 sec

Graph. Also, identify the domain and range.

$$6) y = 6x^2 - 7$$



8) Mr. Huseman is modeling free fall situations with his physics class. To do this, he climbs a 150 ft. tall flag pole and drops a baseball. The height of the ball is given by the function  $h = -16t^2 + 150$  where  $t$  represents time in seconds.

a) Graph the function.

b) How far does the ball fall from  $t = 0$  to  $t = 1$ ?

c) Does the ball fall the same distance from  $t = 1$  to  $t = 2$  as it did from  $t = 0$  to  $t = 1$ ?

