# *QUADRATIC APPLICATIONS*

**APPLICATIONS:**   Word Problems

## ALWAYS ABOUT

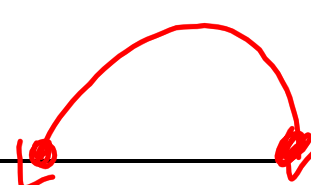Vertical Motion

(h)

y - height

x - time (t)

- Parabola
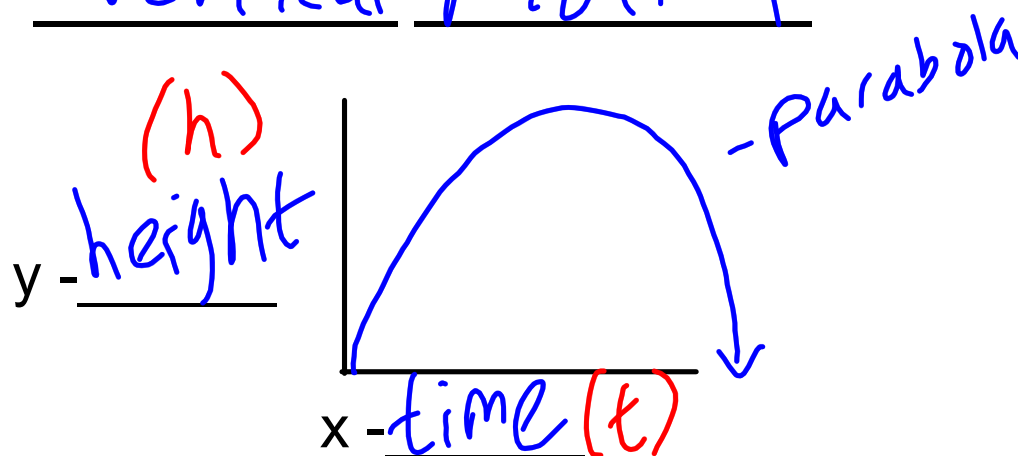
# *QUADRATIC APPLICATIONS*

## YOU ARE SOLVING FOR 3 THINGS

1. _Point_

2. _Vertex_   — MAX

3. _Zero_

# *STEPS TO SOLVE*

1.  _____Underline_____ IMPORTANT
    INFORMATION.

2.  Sketch _____A PICTURE

3.  FIND THE EQUATION

4.  SWITCH VARIABLE TO ____ "x/y"

5.  SOLVE IN CALCULATOR BY GRAPH
    >  GRAPH TRACE -> MENU -> 5 -> 1
    >  CTRL -> T  -Table

# EXAMPLE #1:

A rocket carrying fireworks is launched from a hill 80 feet above a lake. The rocket will fall into lake after exploding at its maximum height. The rocket's height above the surface of the lake is given by h(t) = -16t² + 64t + 80. Where h is height in feet and t is time in seconds. At what height will the rocket explode?

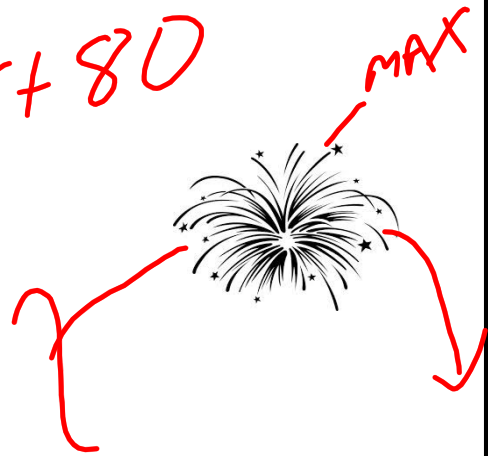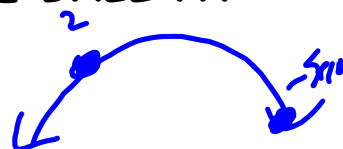EQUATION: $y = -16x^2 + 64x + 80$

2 secs, 144 ft.

MAX

SOLUTION: (2, 144)

# EXAMPLE #2:

After t seconds, a ball tossed in the air from the ground level reaches a height of h feet given by the equation $h(t)= 144t - 16t^2$.

$$y = 144x - 16x^2$$

## A.) WHAT IS THE HEIGHT OF THE BALL AT 2 SECONDS?

SOLUTION: ___224 ft.___

## B.) WHEN WILL THE BALL HIT THE GROUND?

SOLUTION: ___9 secs.___

Aug 22-1:07 PM