1- Find the quadratic function $f(x)$ that has a vertex $(2, 0)$ and passes through $(1, 3)$.

2- Graph the function $f(x) = (x - 3)^2 + 2$ by starting with the graph of $f(x) = x^2$ and using the transformations.

3- Find the <u>vertex, the axis</u> and the <u>intercepts</u> of the parabola:

a. $y = x^2 + 4x$.

b. $f(x) = 8 + 3x - x^2$.

4- Determine whether the quadratic function $f(x) = -4 + 4x - 4x^2$ has a maximum or a minimum.

5- A projectile is fired straight up with velocity of $64 \, ft/s$. Its altitude (height) h after t seconds is given by
$$h(t) = -16t^2 + 64t.$$

a. What is the maximum height of the projectile?

b. When does the projectile hit the ground?