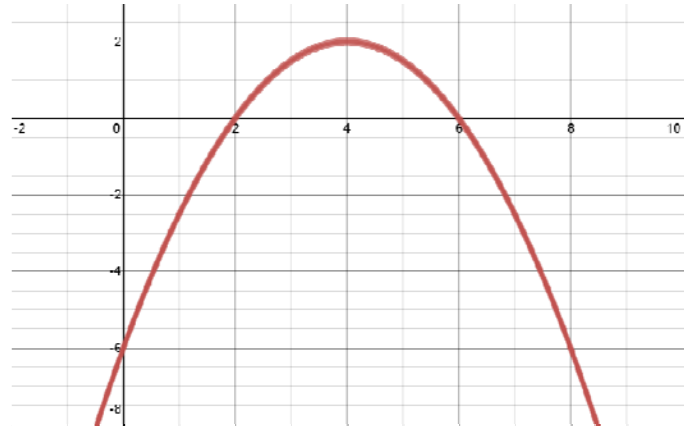Name:_____

For each question (except multiple choice questions), your solution must show work/calculations and display/explain your reasoning.

1. Write an equation for the quadratic function shown graphed.
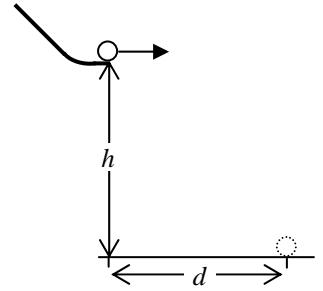

2. For the quadratic function $f(x) = 2x^2 - 4x - 6$, find:

a) The vertical intercept

b) The vertex

c) The horizontal intercepts

3. A steel marble rolls off a level ramp, similar to that in lab, and hits the table. The marble falls a distance $h = 0.196$ m and travels horizontally a distance $d = 0.10$ m. Consider the initial time as the instant the marble leaves the ramp, the origin as the point at which the marble leaves the ramp, and use a standard coordinate system, with $+x$ to the right and $+y$ to the top of the page.

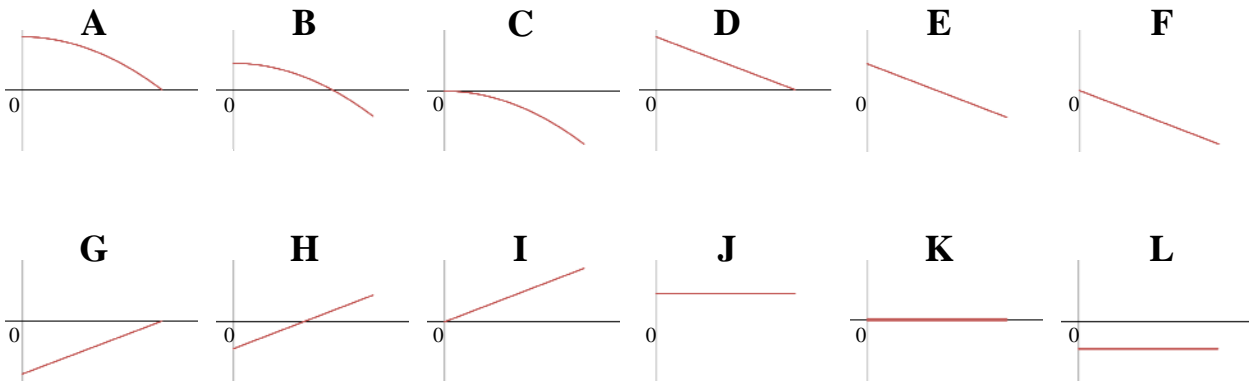a) Circle all of the following quantities which are equal to zero:

$$x_0 \qquad y_0 \qquad v_{0x} \qquad v_{0y} \qquad a_x \qquad a_y$$

b) Which of the graphs below best represents x **vs.** t, the **horizontal position vs. time** for the marble? (circle one)

A   B   C   D   E   F   G   H   I   J   K   L   none of these

c) Which of the graphs below best represents v_y **vs.** t, the marble's **vertical component of velocity vs. time**? (circle one)

A   B   C   D   E   F   G   H   I   J   K   L   none of these

d) Determine the amount of time the ball is in the air (between leaving the ramp and hitting the table).

e) Determine the launch speed of the ball (the speed of the ball the instant it leaves the ramp).