PREC11 Name_____

Quiz3.2/3.3(F)

Clearly show all work when needed.

1. Graph each quadratic in your calculator and determine the following (nearest tenth):

a) $y = 0.8x^2 - 3x - 6$

Vertex:

Axis of symmetry:

y-intercept:

x-intercept(s):

Domain (set notation):

Range (set notation):

b) $f(x) = -0.3x^2 + 16x + 15$

Vertex:

Axis of symmetry:

y-intercept:

x-intercept(s):

Domain (set notation):

Range (set notation):

2. A cricket jumps off a tree branch and follows a parabolic path until he lands on the ground below. The height (h) of the cricket in centimeters at time (t) in seconds after jumping is given by the function $h(t) = -0.4t^2 + 5t + 4$. Graph the function in your calculator and answer the following (nearest tenth if necessary).

a) What is the y-intercept? What does it mean?

b) What is the vertex? What does it tell you about the situation?

c) When does the cricket land on the ground?

d) State the domain and range in set notation.

3. Change the following quadratic functions to vertex form by completing the square:

a) $y = x^2 - 12x + 20$ b) $f(x) = -2x^2 - 8x - 3$ c) $y = x^2 + 3x + 1$

4. A farmer has 100 m of fencing to make a corral. One length of the coral will be along a barn so no fencing would be needed.
   a) Write a quadratic function in standard form that gives the area (A) of the corral as a function of its width (w).

   b) Convert your function into vertex form.

   c) What is the maximum area possible and what width will make it happen?

   d) State the domain and range in set notation.

5. Last year the grad class sold chocolate bars to raise funds. They sold 2000 bars at a price of $4 per bar. This year's class wants to raise the price but figures that for every dollar increase in the price they will sell 50 less chocolate bars.
   a) Write a quadratic that models the revenue (R) as a function of the cost increase (c).

   b) What will be the maximum possible revenue and what chocolate bar cost produces it? (use graphing calculator or complete the square to solve)

   c) State the domain of the function in set notation.