Name: _____

11.3.D2 – CHARACTERISTICS OF QUADRATIC FUNCTIONS

Past due on: _____ Period: _____

ALL problems: Refer to the THREE 11.3 examples "Identifying/Determining Domain & Range/ Zeros/Intervals of Increase & Decrease of a Quadratic Function" in the Chapter 11 Summary.

Use a graphing calculator to graph the function that represents the problem situation. (Use the given axes as a guide for setting the WINDOW.) Identify the absolute maximum, zeros, the domain and range of the function in terms of both the graph and the problem situation, and the intervals of increase and decrease. *Round your answers to the nearest hundredth, if necessary.*

1. A model rocket is launches from the ground with an initial velocity of 60 feet per second. The function $g(t) = -16t^2 + 60t$ represents the height of the rocket, $g(t)$, t seconds after it was launched.
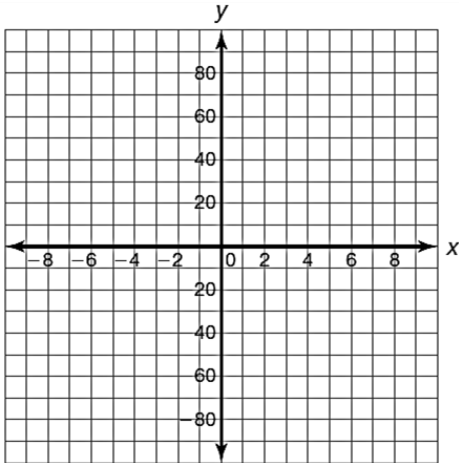
    Absolute maximum: _____

    Zeros: _____

    Domain of graph: _____

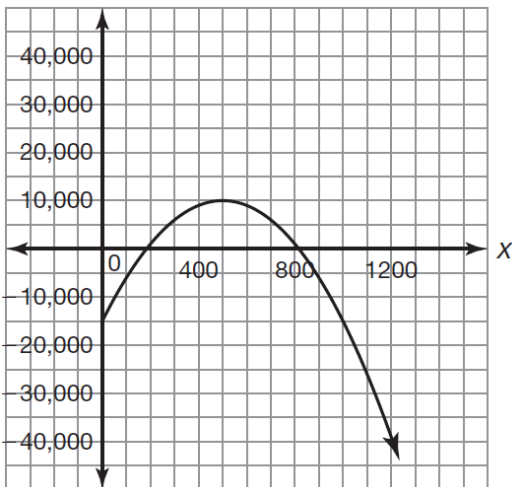   Domain of problem: _____

    Range of graph: _____

    Range of problem: _____

    Interval of increase: _____

    Interval of decrease: _____

2. The profit a masking tape company makes from producing and selling x hundred rolls of tape can be represented by the function $g(x) = -0.1x^2 + 100x - 15,000$. The graph of the profit function is shown.

    Absolute maximum: _____

    Zeros: _____

    Domain of graph: _____

    Domain of problem: _____

    Range of graph: _____

    Range of problem: _____

    Interval of increase: _____
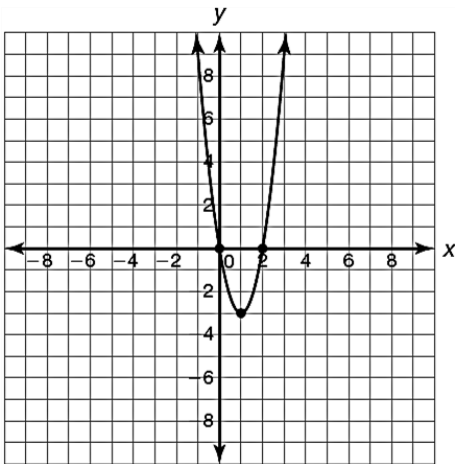
    Interval of decrease: _____

Over what intervals is there a negative profit?

Over what intervals is there a positive profit?

How many rolls of tape must they produce and sell to make a profit of $1590? (Solve graphically; use INTERSECT.)

For each function shown, identify the domain, range, maximum or minimum, y-intercept, zeros, and the intervals of increase and decrease.

3. $f(x) = 3x^2 - 6x$

Domain: _____

Range: _____

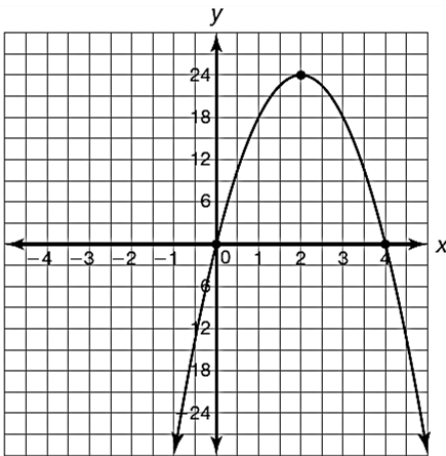Maximum or Minimum: _____

y-intercept: _____

Zeros: _____

Interval of increase: _____

Interval of decrease: _____

4. $f(x) = -6x^2 + 24x$

Domain: _____
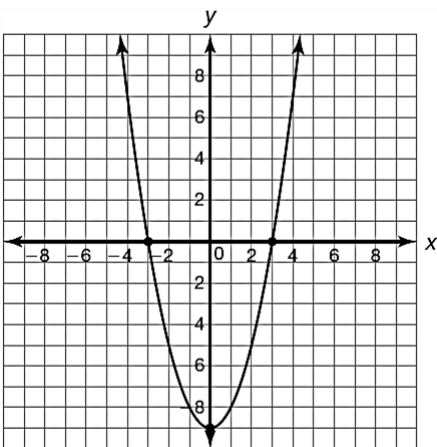
Range: _____

Maximum or Minimum: _____

y-intercept: _____

Zeros: _____

Interval of increase: _____

Interval of decrease: _____

5. $f(x) = x^2 - 9$

Domain: _____

Range: _____

Maximum or Minimum: _____

y-intercept: _____

Zeros: _____

Interval of increase: _____

Interval of decrease: _____