

Name:

HW 5: §1.6-1.8

Complete the following problems to the best of your ability. **SHOW ALL OF YOUR WORK.** Unshown work will not be graded. You may use a calculator.

1. Let $f(x) = 3x^2$ and let $g(x) = -\frac{1}{2}x^3$.
 - (a) Sketch a graph of $f(x)$.
 - (b) Sketch a graph of $g(x)$.
 - (c) Using a graphing calculator or a computer, find the intersection of f and g . At what x -value are these two functions the same?
2. Use a graphing calculator or a website with graphing capabilities (e.g. Wolfram Alpha) to graph the function $f(x) = -2x^2 + 4x - 1$. Use the graph to answer the following.
 - (a) Estimate $f(4)$ from the graph.

(b) What are the domain and range of f ?

(c) On what interval(s) is f increasing? Decreasing?

(d) Give coordinates of any local extrema of f .

3. Suppose a business that prints t-shirts pays \$450 for rent on their building and equipment for a day, and that each t-shirt costs the business \$2.20 to print.

(a) Find a function $C(x)$ that gives the cost C in dollars of printing x shirts.

(b) **Find and Interpret** $C(85)$.

4. Farmer O'Fencerty wants to build a rectangular fence using 900 meters of fencing.

(a) Find a function $A(w)$ that gives the area A of the paddock as a function of w , the width of the paddock.

(b) Find and interpret $A(350)$.

Optional Problems:

1.6: All

1.7: All

1.8: All