**Graphing exercises for Math 165**

1. Sketch the graph of any function  that satisfies the following conditions.

On the graph, label all important calculus features as shown in class.

, , , 

 on , , , 

 on , 

 on , 

 on , , 

2. Sketch a graph of  on the next page. Do and show all work as specified in class. Label the numbers on the *y*-axis so the features of the graph are easy to discern.

(this one has extremum at , and inflection points at )

This next one is an exam problem, so I give hints to eliminate some of the busy work for them. It has both vertical and horizontal asymptotes, a critical point at , and an inflection point at . It’s a nice looking function that they can’t fake by just plugging in a bunch of integers.

3. Let . Sketch .

Clearly and neatly show all your work as prescribed in class. Label all important features on the graph. Include all important features as described in class. You **MUST** put numbers on the *x-* and *y*-axes.

Some helpful hints:



It might also be helpful to realize  can be also be simplified in a variety of ways:  and  and .

Use whichever of the three forms of  works best for the task you are attempting.