MTH 1125 Test #3

Fall 2016

Pat Rossi Name _____

Show CLEARLY how you arrive at your answers.

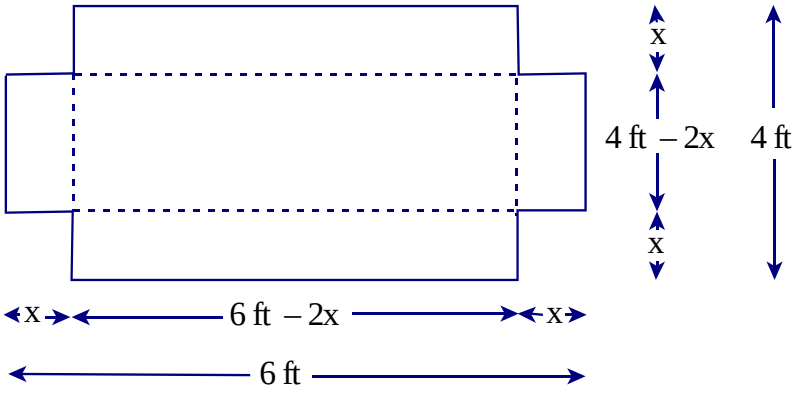
1. $f(x) = 2x^3 + 3x^2 - 36x$. Identify the intervals on which $f(x)$ is increasing/decreasing, and identify all relative maximums and minimums.

2. $f(x) = 4x^{\frac{9}{5}} + 9x^{\frac{4}{5}} + \frac{1}{2}$. Identify the intervals on which $f(x)$ is increasing/decreasing, and identify all relative maximums and minimums.

3. $f(x) = x^3 - 3x^2 - 24x + 4$ on the interval $[-3, 2]$. Find the absolute maximum value and absolute minimum value of $f(x)$.

From Exercises 4 and 5, select one.

4. An open box is to be constructed from a rectangular piece of cardboard of length 6 ft and width 4 ft, by cutting equal sized squares from the corners (as shown below), and bending up the sides. what are the dimensions of the box of largest volume that can be constructed in thie manner?



5. A rectangle is inscribed within the region bounded by the positive x and y axes, and the graph of $y = (x-15)^2$ (as shown below).What should the value of x be in order to make the area of the rectangle as large as possible?