MTH 1125 Test #3
SPRING 2016

Pat Rossi   Name _____

Show CLEARLY how you arrive at your answers.

1. $f(x) = x^3 - 3x^2 - 9x + 2.$ Identify the intervals on which $f(x)$ is increasing/decreasing, and identify all relative maximums and minimums.

2. $f(x) = 2x^{\frac{5}{3}} - 5x^{\frac{2}{3}}$. Identify the intervals on which $f(x)$ is increasing/decreasing, and identify all relative maximums and minimums.

3. $y^3 + 3x^2y^4 = 5x^2 + \sin(y)$; Compute y'

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

5. Farmer Joe has 600 yards of fencing. He will use the fencing to construct a rectangular pen. He will use some of the fencing to partition the pen into three smaller pens, of similar shape and equal area (as shown below). What should the overall dimensions of the pen be in order for the pen to contain the largest area possible?