Calculus 120 **Extreme Values Quiz** **Name:**

1. Find the intervals of increase and decrease for the following functions. **[5]**

a) $f(x) = 5x^2 - 40x + 10$

b) $f(x) = 2x^3 - 3x^2 - 36x + 62$

2. For the following Quadratic functions find the vertex. **[4]**

a) $f(x) = -3x^2 - 24x - 16$

b) $f(x) = \frac{1}{2}x^2 - 9x + 8$

3. Find the critical numbers of the following function. **[6]**

a) $f(x) = x^3(x-1)^4$

b) $f(x) = 2x^3 - 9x^2 - 60x + 82$

4. Find the absolute maximum and absolute minimum over the given interval. **[10]**

a) $f(x) = 5x^4 + 20x^3 - 40x^2 + 8 \qquad -5 \le x \le 2$

b) $f(x) = x^4 - 4x^3 - 8x^2 - 1 \qquad -3 \le x \le 5$