

Professor Fred Katiraie Calculus I; Quiz Six Version A

Name: _____

1. Find all value(s) of c (if any) that satisfy the conclusion of the Mean Value Theorem for the function $f(x) = \frac{1}{1+x}$ on the interval $[0,1]$ (3 points)

2. Given that the function $f(x) = x^3 + ax^2 + bx$ has critical numbers at $x = 1$, and $x = -2$, find a and b . (3 points)

3. Find the minimum value of the function $f(x) = x \ln x$
(Must Justify Your Answer) (3 points)

4. Find all the points of inflection of $f(x) = x^5 e^{-x}$ (3 points)
(Must Justify Your Answer)

5. Find the Critical numbers of the function $f(x) = x^{\frac{2}{3}}(x-3)^2$ (3 points)

6. A farmer has 20 feet of fence, and he wishes to make from it a rectangular pen for his pig Wilbur, using a barn as one of the sides. In square feet, what is the maximum area possible for this pen? (5 points)