

Name _____

Homework 14

Section 4.3

1. (7) Consider the function $f(x) = bxe^{-ax}$, with $a > 0$ and $b \neq 0$. What is the critical point? Use the first derivative test to determine under what conditions on b the critical point will be a local minimum.

2. (7) Find and classify the critical point of $g(t) = \frac{1}{\alpha + (t - \beta)^2}$, given that $\alpha > 0$.

3. (6) Given $f(x) = x^3 - ax^2 + bx + c$, determine conditions on a , b and c so that $f(x)$ has exactly one critical point.