Math 250 3.1-3.6 Concepts
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1. The calculus can be used to find where a function f is increasing by finding where

_ _ _ _ _ _**the derivative is positive** _

2. The calculus can be used to find where a function f is concave upward by finding where
_ _ _ _ _ _**the second derivative is positive**_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

3. The second derivative test says that the point (c, f(c)) is a relative maximum of f(x) if

_ _ _**f ' (c) = 0** _ _ _ _ _ _ _ _ _ _ _ _ _ and _ _ _ _ _ **f ' ' (c) < 0**_ _ _ _ __ _ _ _ _ _ .

4. A good place to look for inflection points is where

_ _ _ _ _ _**the second derivative is zero**_ _

5. The calculus can be used to find where a function f is decreasing by finding where

_ _ _ _ _ _**the derivative is negative**_ _

6. The absolute maximum of a differential function on a closed interval occurs at either

_ _ _ **the critical numbers**_ _ _ _ or at _ _ _ _ _ **the end points**_ _ _ _ _ _ _ _ _ _ _ .

7. If f ' '(3) = 2 you can expect f(x) to be _ _ **concave upward**_ _ _ _ _ _ _ at x = 3.

8. One can estimate the value of the derivative of a function from its graph because the derivative is the

_ _ _ _**slope of the tangent line**_ .

9. If the derivative of f(x) is negative on the entire interval (2,4) then the function f(x) is

_ _ _ _ _ _**decreasing on the interval (2,4)**_ _

10. If the derivative of the continuous function f(x) changes from negative to positive at x = 3 then

_ _ _ _ _ _**f(3) is a relative minimum for f(x)**_ _ _ _ _ _ _ _ _ _ _ _ _ _ _

11. If the second derivative of the continuous function f(x) changes from negative to positive at x = 3 then
_ _ _ _ _ _ _ _ _ _ _ _ **(3,f(3)) is an inflection point of f(x).**_ _ _ _ _ _ _