

MATH 133 – Calculus with Fundamentals 1
Quiz 8 – December 1, 2017

Your Name: _____

Directions

Do all work in the space provided below or on the back of the second sheet. There are 30 total points possible.

Questions

1) Both parts of this question refer to the function $f(x) = x^2e^{-4x}$

(a) (5) Compute $f'(x)$.

(b) (5) Find the critical points of f from your derivative.

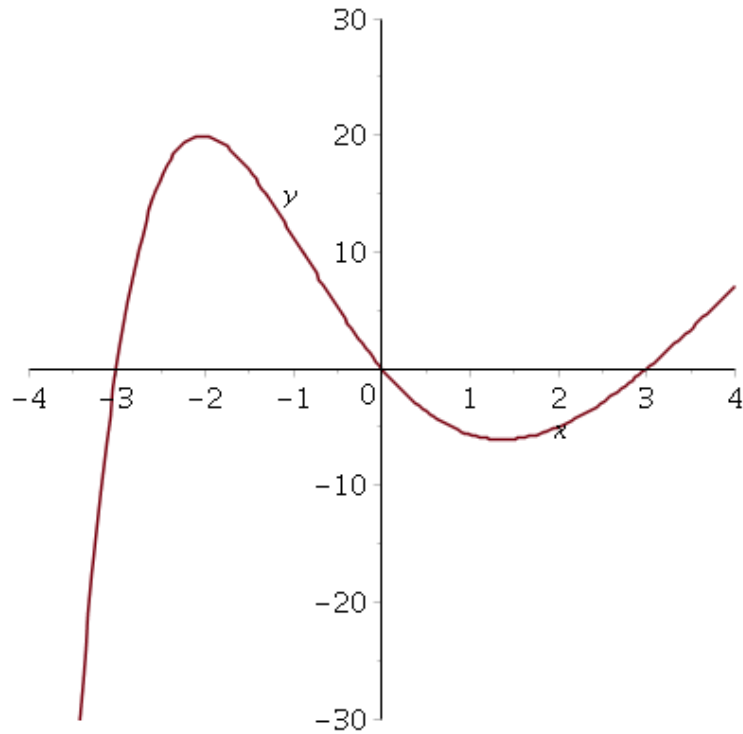


Figure 1: Plot of $y = f'(x)$ for Problem 2

2) The graph above shows $y = f'(x)$ for some function f (NOTE: this is the graph of the derivative $y = f'(x)$, NOT $y = f(x)$).

(a) (4) What are the critical points of f in the interval $[-4, 4]$?

Answer: $x =$ _____

(b) (4) At which x value(s) in this interval does f have a local maximum?

Answer: $x =$ _____

(c) (4) Explain briefly how you know your answer in (b) is correct.

(d) (4) On the interval $(-1, 1)$, is the graph $y = f(x)$ concave up or concave down?

Answer: _____

(e) (4) How many points of inflection does $y = f(x)$ have in the interval $[-4, 4]$, and what are the approximate x -values where they are located?

Answer: _____