

**MATH 232 - Calculus for Business  
Homework #4**

1) Find all the critical values of  $y = x^3 - x^2 - x + 2$ .

1) \_\_\_\_\_

2) If  $f(x) = 2x^3 + 3x^2 - 36x + 1$ , determine the intervals on which  $f$  is increasing and the intervals on which  $f$  is decreasing.

2) \_\_\_\_\_

3) How many critical values does the function  $f(x) = 3x^4 + 4x^3$  have?

3) \_\_\_\_\_

4) The function  $y = x^3 + 15x^2 - 33x$  has a relative maximum when  $x =$

4) \_\_\_\_\_

5) Determine the intervals on which the function is increasing and on which it is decreasing. 5) \_\_\_\_\_

Also determine the points of relative maxima and relative minima.  $y = x^3 + x^2 - 3x + 7$

6) If  $y = x^3 + 4x^2 - 3x + 4$ , use the second-derivative to find all values of  $x$  for which (a) 6) \_\_\_\_\_  
relative maxima occur (b) relative minima occur.

7) The cost equation for a company is  $C(x) = 3x^3 - 27x^2 + 45x + 100$ . Find the relative maxima 7) \_\_\_\_\_  
and the relative minima.

8) Find the relative extremas of  $f(x) = 4x^3 - 6x$ . 8) \_\_\_\_\_