

## MAT 136 (Calculus I), Quiz 7, Prof. Jim Swift

Name: \_\_\_\_\_

You may work on this in groups, but turn in your own quiz.

Let the function  $f$  be defined by  $f(x) = x^3 - 3x^2 + 1$  for this entire worksheet.

1. Compute  $f'(x)$  and find the largest interval(s) on which  $f$  is increasing, and on which  $f$  is decreasing.

2. Compute  $f''(x)$  and find the largest interval(s) on which  $f$  is concave up, and on which  $f$  is concave down.

3. Fill in the blanks in these four sentences . Fill in the first blank with “increasing” or “decreasing”, and fill in the second blank with “concave up” or “concave down”.

On the interval  $(-\infty, 0]$ , the function  $f$  is \_\_\_\_\_ and \_\_\_\_\_ .

On the interval  $[0, 1]$ , the function  $f$  is \_\_\_\_\_ and \_\_\_\_\_ .

On the interval  $[1, 2]$ , the function  $f$  is \_\_\_\_\_ and \_\_\_\_\_ .

On the interval  $[2, \infty)$ , the function  $f$  is \_\_\_\_\_ and \_\_\_\_\_ .

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Name: \_\_\_\_\_

You may work on this in groups, but turn in your own quiz.

Let the function  $f$  be defined by  $f(x) = x^3 - 3x^2 + 2$  for this entire worksheet.

1. Compute  $f'(x)$  and find the largest interval(s) on which  $f$  is increasing, and on which  $f$  is decreasing.

2. Compute  $f''(x)$  and find the largest interval(s) on which  $f$  is concave up, and on which  $f$  is concave down.

3. Fill in the blanks in these four sentences . Fill in the first blank with “increasing” or “decreasing”, and fill in the second blank with “concave up” or “concave down”.

On the interval  $(-\infty, 0]$ , the function  $f$  is \_\_\_\_\_ and \_\_\_\_\_ .

On the interval  $[0, 1]$ , the function  $f$  is \_\_\_\_\_ and \_\_\_\_\_ .

On the interval  $[1, 2]$ , the function  $f$  is \_\_\_\_\_ and \_\_\_\_\_ .

On the interval  $[2, \infty)$ , the function  $f$  is \_\_\_\_\_ and \_\_\_\_\_ .