

Math 220 Section 6 Quiz 7

21 October 2015

Name: Answer Key

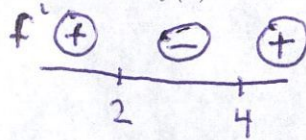
1. Let $f(x) = \frac{1}{3}x^3 - 3x^2 + 8x + e$.

(a) On which intervals is $f(x)$ increasing? On which intervals is $f(x)$ decreasing?

$$f'(x) = x^2 - 6x + 8$$

$$= (x-4)(x-2)$$

critical numbers = 4, 2



inc: $(-\infty, 2) \cup (4, \infty)$
 dec: $(2, 4)$

(b) What are the local maxima and local minima of $f(x)$, if any?

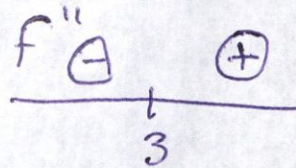
the point $(2, f(2))$ is a local maximum,

the point $(4, f(4))$ is a local minimum.

(c) On which intervals is $f(x)$ concave up? On which intervals is $f(x)$ concave down?

$$f''(x) = 2x - 6$$

critical number = 3



CU: $(3, \infty)$

CD: $(-\infty, 3)$

(d) What are the points of inflection of $f(x)$, if any?

$(3, f(3))$ is POI.