

BREAKDOWN OF CALCULUS BC TEST 1-4
100 PTS NON-CALCULATOR
THURSDAY, OCTOBER 11

Review: Page 238: 1-47 odd, Given Notes and examples

| Part I: Short Answer [50 pts × 1] | Total Amount | Total Points |
|--|---------------------|---------------------|
| §3.1: Extrema <ul style="list-style-type: none"> • Determine the absolute max and min from an equation. • Establish the critical points from a fractional equation Examples: Page 238: 1-7 odd | 2 questions | 15 points |
| §3.2: Mean Value Theorem <ul style="list-style-type: none"> • Application of Mean Value Theorem to an equation • Explain why the MVT fails to exist in a function Examples: Page 238: 9-19 odd and notes | 2 questions | 15 points |
| §3.3: First Derivative Test <ul style="list-style-type: none"> • Identify when a function is increasing and decreasing intervals with work • Identify relative extrema from creating a sign chart Example: Page 238: 21-33 odd | 1 question | 15 points |
| §3.4: Concavity <ul style="list-style-type: none"> • Identify the intervals of concave up and down and provide work • Establish Point of Inflection Example: Page 238: 35-39 odd | 1 question | 5 points |
| Part II: Multiple Choice. [21 pts × 1.0417] | Total Amount | Total Points |
| §3.1: Extrema | 1 question | 3 points |
| §3.2: Mean Value Theorem | 1 question | 3 points |
| §3.3: First Derivative Test | 3 questions | 9 points |
| §3.4: Second Derivative Test and Concavity | 1 question | 3 points |
| Spiral Review. [6 pts × 1.0417] | Total Amount | Total Points |
| Chapter 1: Discontinuity | 1 question | 2 points |
| Chapter 5: Derivative Inverses | 1 question | 2 points |
| Chapter 2: Implicit Differentiation | 1 questions | 2 points |

1)

If f is a function such that $\lim_{x \rightarrow 2} \frac{f(x) - f(2)}{x - 2} = 0$, which of the following must be true?

- (A) The limit of $f(x)$ as x approaches 2 does not exist.
- (B) f is not defined at $x = 2$.
- (C) The derivative of f at $x = 2$ is 0.
- (D) f is continuous at $x = 0$.

2)

Let f and g be functions that are differentiable everywhere. If g is the inverse function to f and $g(-2) = 5$ and $f'(5) = -\frac{1}{2}$, then $g'(-2) =$

- (a) 2 (b) $\frac{1}{2}$ (c) $\frac{1}{5}$ (d) $-\frac{1}{5}$ (e) -2

3)

If $3x^2 + 2xy + y^2 = 2$, then the value of $\frac{dy}{dx}$ at $x = 1$ is

- (A) -2 (B) 0 (C) 2 (D) 4 (E) not defined

KEY: 1) C, 2) E, 3) E

Part III: Free Response Question. [9 pts × 2.7778]

Total Amount

Total Points

Chapter 3: Differentiation using a graph

1 questions

9 points

- Determine the average rate of change of two points
- Given a graph, Identify the relative extrema and critical points
- Explain why there must exist a slope in between two points
- Solve for a function applying a differentiation rule