

BREAKDOWN OF CALCULUS BC TEST 1-2
100 PTS NON-CALCULATOR
THURSDAY, SEPTEMBER 20

Review: Page 157: 1-8 all, 9-73 odd, 77-82 all, 85, 86, WKST on Related Rates, Given Notes and examples

Part I: Short Answer [50 pts × 1]	Total Amount	Total Points
§2.1: Limit Process and §2.1A: Alternate Form	2 questions	6 points
<ul style="list-style-type: none"> • Use the limit process (definition of a derivative) to solve for a derivative • Use the alternate form to solve for a derivative 		
Examples: Page 157: 1-6 all, 65-69 odd; KEY: 2) 5, 4) $-\frac{6}{x^2}$, 6) $-\frac{1}{49}$,		
§2.2 to §2.4: Differentiation Rules	5 questions	15 points
<ul style="list-style-type: none"> • Power rule AND substitute a value for the derivative • Power and chain rule to an algebraic equation • Apply trig functions and their derivatives to product and chain rule • Difference between average velocity (from the position) AND instantaneous velocity 		
Examples: Page 157: 7, 8, 9-19 odd, 29-39 odd, 45-49 odd, 53-73 odd, 85, KEY: 8) f is differentiable for all $x \neq -1$.		
§2.2 to §2.4: Apply the Differentiation Rules	3 questions	17 points
<ul style="list-style-type: none"> • Given a table and a graph, apply the differentiation rules if needed 		
Examples: Page 126: 81 and 82, Page 137: 101 and 102; KEY: 82A) 4, 82B) $\frac{3}{4}$; 102A) 24, 102B) Not possible, 102C) $\frac{4}{3}$, 102D) 162		
§2.5: Implicit Differentiation	3 questions	10 points
<ul style="list-style-type: none"> • Solve for $\frac{dy}{dx}$ from the original function • Apply a secondary derivative from the given • Apply the derivative to a related rate application problem 		
Examples: Page 158: 77-82 all and Example #5 on Notes 2.5; KEY – 78) $y' = \frac{2x+4y}{3y^2-4x}$, 80) $y' = \frac{2x-9y}{9x-32y}$, 82) $y' = \frac{1+\sin(x+y)}{\sin(x+y)}$		
Part II: Multiple Choice [25 pts × 1]	Total Amount	Total Points
§2.1: Formal Definition of a Derivative	1 question	3 points
§2.1A: Graph of a derivative	1 question	3 points
§2.1A: Implying Continuity	1 question	3 points
§2.2: Interpreting the derivative	1 question	3 points
§2.2: Writing a tangent line equation	1 question	3 points
§2.3: Instantaneous Velocity vs Average Velocity	1 question	3 points
§2.6: Related Rates	1 question	3 points

Spiral Review**Total Amount****Total Points**

Chapter 1: Discontinuity

1 question

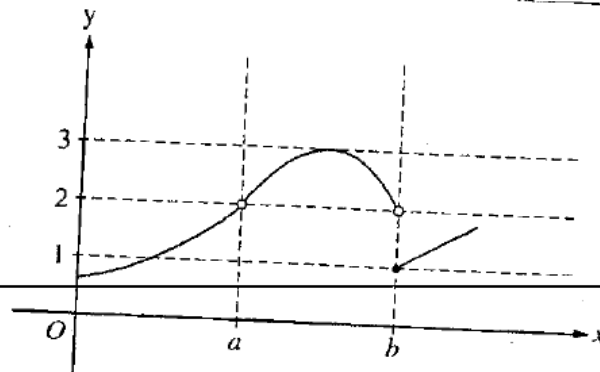
2 points

Chapter 1: Intermediate Value Theorem

1 question

2 points

1)



The graph of the function f is shown in the figure above. Which of the following statements about f is true?

- (A) $\lim_{x \rightarrow a} f(x) = \lim_{x \rightarrow b} f(x)$
- (B) $\lim_{x \rightarrow a} f(x) = 2$
- (C) $\lim_{x \rightarrow b} f(x) = 2$
- (D) $\lim_{x \rightarrow b} f(x) = 1$
- (E) $\lim_{x \rightarrow a} f(x)$ does not exist.

2)

x	0	1	2
$f(x)$	1	k	2

The function f is continuous on the closed interval $[0, 2]$ and has values that are given in the table above. The equation $f(x) = \frac{1}{2}$ must have at least two solutions in the interval $[0, 2]$ if $k =$

- (A) 0 (B) $\frac{1}{2}$ (C) 1 (D) 2 (E) 3

Part III: Free Response [12 pts × 2.0834] **Total Amount** **Total Points**

§2.6: Related Rates	2 questions	12 points
<ul style="list-style-type: none">• Solve related rates using a given information, such as Pythagorean theorem, area/circumference of a circle, cone with similar triangle ratio, etc...• Write an equation of a tangent line• Determine the angle of a figure		

Examples: Page 158: 86; KEY – 86) $624 \text{ cm}^2/\text{sec}$ and the related rates worksheet and examples