

Review for Midterm #2

1. You should know the definition of the derivative and know how to use it to compute the derivatives of simple functions. ~~Use~~ It might be helpful to review the Main Limit Theorem of Chapter 1

Problems: Use the definition of the derivative to find the following derivatives: pg 148: #1, 2, 3

1. $f'(x)$ when $f(x) = x$

2. $f'(x)$ when $f(x) = |x|$

3. $f'(x)$ when $f(x) = x^2 + \sqrt{x}$

4. $f'(3)$ when $f(x) = |x|$

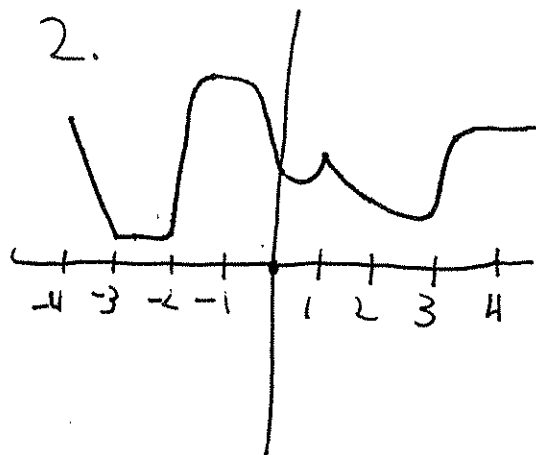
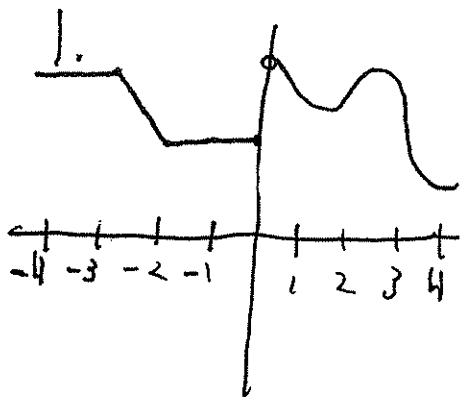
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2. You should understand the various interpretations of the derivative (slope of tangent line of a function, velocity etc.) You should be able to tell by looking at a graph of a function whether or not it is differentiable

Problems:

pg 147: 1, 2, 3, 5, 6, 7, ~~8~~ pg 148; Concepts Review: 14, 32

pg 148-149, Sample Test Problems: 4

Where Figure out by looking at the graph, where the following functions are not differentiable. Explain your answer



You should know the rules for differentiating functions given in sections 2.3 and ~~2.4~~ 2.5

Problems:

pg 147, concepts Test: 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20

21, 24, 25

pg 148 Sample Test Problems: 5-14, 30, 31, 45, 48

Find $f'(x)$ when $f(x)$ is the following:

1. $f(x) = (x+1)^{65}$

2. $f(x) = \left(\frac{x+1}{x+3}\right)^4$

You should be able to implicitly differentiate. You should be able to solve related rates problems.

Pg 147, Concepts Review: #27, 28, 33, 34

Pg 149, Sample Test Problems: #35, 36, 41 (a, b, c), 42

Pg 140, 2.8: #5, 9, 29

You should be able to approximate the value of a function using a tangent line. You should understand how this relates to the ideas of chapter 2.9

Problems: Approximate the following:

1. $\sqrt{15.5}$
2. $\sqrt{82}$

pg 147 Concepts Review: #35, 36

pg 148 Sample Test Problems: 50a