Name Due Date **Mon., Oct. 16, 2017**  Block \_\_\_\_\_\_\_\_

# Problem Set 3 (17-18)

**WORK FOR EACH FRQ MUST BE SHOWN NEATLY ON ITS**

**OWN SIDE OF PAPER WITH THIS ASSIGNMENT ATTACHED.**

## Part 1: Free Response (9 points each)

1. 1981 – AB1 (Modified) **NO CALCULATOR**

Let *f* be the function defined by.

a) Find the zeros of *f*.

b) Using the limit definition of derivative, find the slope of the tangent line to the graph of *f* at the point

 where *x* = 1 and find the equation of the tangent line at this point.

c) Find the *x*-coordinate of each point at which the line tangent to the graph of *f* is parallel to the line

 .

Part 2: Multiple Choice (1 pt. for correct response; 0 pt. for no response) **NO CALCULATOR**

1. Evaluate the limit, given that  and .



A) 

B) 

C) 

D) 

2. Evaluate the limit: =

A) 2

B) −2

C) 0

D) The limit does not exist.

3. Is there a number *a* such that  exists? If so, find the value of *a* and the value

of the limit.

A) ; limit = 1.4

B) ; limit = 1.6

C) ; limit = 1.4

D) ; limit = 1.6

4. The at  is

A) −1

B) 0

C) 1

D) 3

5. 

A) −1

B) 0

C) 1

D) nonexistent

6. If *f* is a function such that , which of the following must be true?

A) 

B)  does not exist

C)  does not exist

D)  is continuous at 