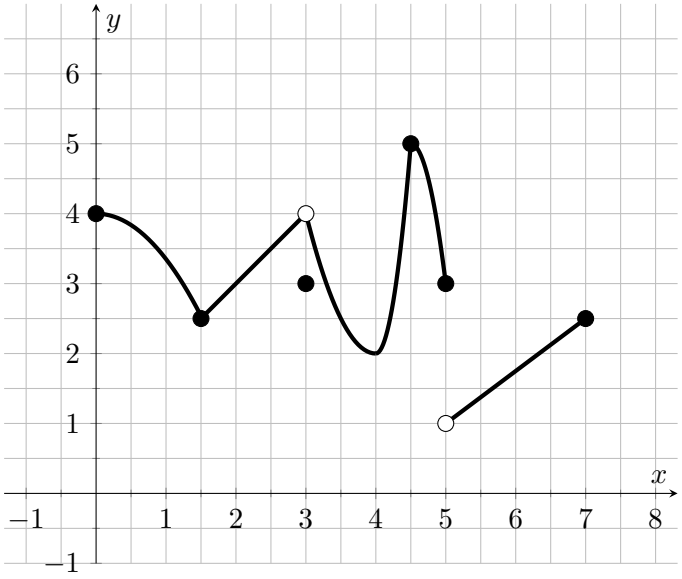
Circle your Instructor:
Faudree, Williams, Zirbes _____ / 25

Math 251 Fall 2017 **Quiz #8, November 1st**

Name: _____

There are 25 points possible on this quiz. This is a closed book quiz. Calculators and notes are not allowed. **Please show all of your work!** If you have any questions, please raise your hand.

Exercise 1. (10 pts.) Consider the graph of the function f given below.



a) State the absolute maximum of the function f on the interval $[0, 7]$ and give its location or explain why it doesn't exist.

b) State the absolute minimum of the function f on the interval $[0, 7]$ and give its location or explain why it doesn't exist.

c) Identify any other local maxima of the function f and their locations.

d) Identify any other local minima of the function f and their locations.

Exercise 2. (5 pts.) Find the absolute maximum and absolute minimum of the function

$$f(x) = -x^3 - 3x^2 + 9x$$

on the interval $[0, 3]$.

Exercise 3. (5 pts.) Find the critical numbers of the function $F(x) = x^{3/5}(x - 3)$.

Exercise 4. (5 pts.) Consider the function $f(x) = 3x^2 - 2x + 1$ on the interval $[0, 2]$.

a) Verify that the function satisfies the hypotheses of the Mean Value Theorem on the interval $[0, 2]$. Justify your answer in words.

b) Find all numbers c in the interval $[0, 2]$ that satisfy the conclusion of the Mean Value Theorem.