

**Math 10A with Professor Stankova**

**Quiz 5; Wednesday, 9/27/2017**

**Section #106; Time: 10 AM**

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**Name: \_\_\_\_\_**

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Circle True or False or leave blank. (1 point for correct answer,  $-1$  for incorrect answer, 0 if left blank)

1. True    False    It is possible that repeatedly using Newton's method brings you further and further from the root.
2. True    False    The Taylor series for  $x^4 + 3x^2 - 5x + 1$  is  $x^4 + 3x^2 - 5x + 1$ .

Show your work and justify your answers. Please circle or box your final answer.

3. (10 points) (a) (5 points) Approximate  $\sqrt[3]{8.12}$  using second order Taylor series. You may leave your answer as a sum of fractions.

(b) (1 point) When using Newton's method to find a zero of a function  $f(x)$ , what is the formula for the next guess  $x_1$  if my current guess is  $x_0$ ?

(c) (4 points) Use Newton's method once to approximate  $\sqrt[3]{8.12}$ .