

Math 132 - Quiz 7

April 30, 2020

Name _____

Score _____

Show all work to receive full credit. Supply explanations when necessary. You must work individually on this quiz. This quiz is due no later than May 5.

1. (2 points) Let $f(x) = 1 + x + x^2$. Determine the 2nd Taylor polynomial for f at $x = 1$.

2. (2 points) Use a computer algebra system to check your result in problem #1. (The SageMath syntax is `taylor(1+x+x^2,x,1,2)`.) Then expand your result (by doing the algebra). What do you notice?

Follow-up: What do you think the 3rd Taylor polynomial for f at $x = 1$ would be?

3. (3 points) Compute the 4th Maclaurin polynomial for $f(x) = e^{3x}$. Then use it to approximate $e^{0.75}$.

4. (3 points) Find the Maclaurin series for $f(x) = e^{3x}$. Then use the ratio test to show that it converges for all x .