

Quiz 7

Name:

Directions: Answer each question to the best of your ability. You may use a calculator, but you must show all work to receive full credit.

1. For each of the geometric series, find a and r , and state the infinite sum. (3 pts each)

(a) $S = 5 + \frac{10}{3} + \frac{20}{9} + \frac{40}{27} + \dots$

(b) $S = 7 - \frac{35}{6} + \frac{175}{36} - \frac{875}{216} + \dots$

2. Jack and Jill both deposit \$1000 into an investment account each month on the first of the month. Jack is not very investment savvy, and despite having portfolio that loses 5% each month, he continues to invest his \$1000 each month for a whole year. Jill, on the other hand, is quite smart with her investments, and her portfolio increase by 2% each month. At the end of a year, how much more money does Jill have than Jack? (6 pts)

3. State the general formula to find the degree 3 Taylor polynomial around $x = a$. (3 pts)

4. Find the degree 3 Taylor polynomial for the following functions around the given value of a (4 pts each)

(a) $f(x) = \ln x, a = 1$

(b) $f(x) = \frac{1}{\sqrt[3]{(1+x)^2}}, a = 0$

5. Given your answer to 4.(a), estimate the value of $\ln 1.1$. (2 pts)