

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) $S = 5 + \frac{15}{4} + \frac{45}{16} + \frac{135}{64} + \dots$

(b) $S = 7 - \frac{14}{3} + \frac{28}{9} - \frac{56}{27} + \dots$

2. Jack and Jill both deposit \$1000 into an investment account each month on the first of the month starting January 1. Interest is calculated monthly and added on the last day of the month. Jack is not very investment savvy, and despite having a portfolio that loses 3% 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 increases by 3% each month. At the end of a year, how much more money does Jill have than Jack on December 30 of the year the accounts were opened? (4 pts)

3. State the general formula to find the degree 4 Taylor polynomial around $x = 0$. (3 pts)

4. Find the degree 4 Taylor polynomial for the following functions around 0. (4 pts each)

(a) $f(x) = e^x$

(b) $f(x) = \sqrt[5]{1+x}$

5. Given your previous answers, estimate the value of e^2 and $\sqrt[5]{2}$. (2 pts each)