Quiz 12

Name:_____

1. Find the third order Taylor polynomial to the function $f(x) = \sqrt{1+x}$ at the point $x = 0$.

2. Find the sum $1 + 3 + 9 + \cdots + 3^{20}$

3. From Taylor's theorem

$$\ln(1-x) = x + \frac{x}{2} + \frac{x^2}{3} + \cdots + \frac{x^n}{n} + R_n(x)$$

where the error term satisfies

$$|R_n(x)| \leq \frac{|x|^{n+1}}{n+1}.$$

If you wish to use this series to compute $\ln(.5)$ accurate to three decimal places how large to you have to take n?