

Quiz 3

Name: _____

Math 4548

January 31, 2014

1. (2 points). Suppose $f(x) = P_n(x) + R_n(x)$, where $P_n(x)$ is the degree n Taylor polynomial at x_0 and $R_n(x)$ is the remainder term. Taylor's Theorem gives a formula for $R_n(x)$. What is it? (And where is the point c ?)

2. (1 point). Show that the degree 3 Taylor polynomial at 0 for $\sin x$ is $P_3(x) = x - \frac{1}{6}x^3$.

3. (2 points). Use your answer to (1) to estimate the error in the approximation, $\sin(.1) \approx P_3(.1) = (.1) - \frac{1}{6}(.001)$. (Explain your answer.)