MAT1505-05/08 OIS Quiz 9 Print Name (Last, First) _____ /10

Usual instructions.

① a) Write down the formula for the Taylor series of a function $f(x)$ about center $x=1$ (ie a power series in powers of $(x-1)$).

b) Evaluate the first 4 nonzero terms of the Taylor series for $f(x)=x^{1/2}$ about $x=1$.

② $\sin x = \sum_{n=0}^{\infty} (-1)^n \frac{x^{2n+1}}{(2n+1)!}$ a) Write out the first 4 nonzero terms.

b) If $12^\circ \approx .2094395$ radians, how many terms are needed to evaluate $\sin 12^\circ$ to 5 decimal place accuracy? Explain.

c) Evaluate $\sin 12^\circ$ to 5 decimal place accuracy (your result should only have 5 decimal places).