m8w05, Quiz 2	Name:	Section:

Answer ALL questions. Unless instructed otherwise, you should show ALL your work and simplify your final answer as much as possible. Please box your final answer to each part.

Problem 1: [12 pts]

(**a**) Compute the Taylor series for $f(x) = \cos x$ with center $a = \pi/2$.

(**b**) Use your answer to part (a) to express $\cos\left(\frac{\pi}{2} + \frac{1}{10}\right)$ as a fraction, accurate to within $1/100000$ $(= 10^{-5})$.

Problem 2: [13 pts] Three points are given by $A(1, 0, -1)$, $B(2, 2, -2)$ and $C(-1, 3, 0)$.

(**a**) Find the scalar projection of $\vec{BA}$ onto $\vec{BC}$.

(**b**) Find the area of the triangle $\triangle ABC$.

(**c**) Find the angle $\angle ABC$. (i.e. the angle at B.) You should leave your answer in the form of the arccos of a number.

(**d**) Find a vector equation of the line containing A and B.