MATH 2058 - HW 7 - Questions

1 (P. 129 Q9)**.** Let $A \subset B \subset \mathbb{R}$ be subsets of $\mathbb{R}$. Let $f : B \to \mathbb{R}$ be a function and $g : A \to \mathbb{R}$ be the restriction of f on A, that is, $g(x) = f(x)$ for all $a \in A$.

i. Show that if f is continuous at $c \in A$, then g is continuous at c.

ii. Give an example to illustrate that if g is continuous at $c \in A$, it is not necessary that f is continuous at c.

2 (P. 140 Q7)**.** Consider the equation

$$x = \cos x$$

i. Show that the equation has a solution on the intevral $[0, \pi/2]$

ii. Using the Bisection Method and a calculator, find an approximate solution to the equation with error less than 10^{-3}