MATH-101

Quiz 2

Name:- ID:-

Q1. Evaluate the limit, if it exists:

$$\lim_{x\to 0}\frac{x+2x\cos x}{\sin 3x}$$

Q2. Let

$$f(x)=\begin{cases}\dfrac{6c}{x+1} & \text{if} \quad x>1\\ cx+4 & \text{if} \quad x<1\end{cases}$$

Find the value of *c* so that *f(x)* has a limit at *x=1*.

Q3. For the limit $\lim_{x \to -4} \sqrt{1-2x} = 3$, find a $\delta > 0$ that works for $\varepsilon = 1$. That is, find $\delta > 0$ such that $0 < |x + 4| < \delta \Rightarrow \left|\sqrt{1-2x} - 3\right| < \varepsilon$.