Math 101-142-Quiz #1

Name: **ID:**

Question1: Let $f(x) = x^2 - 4x$ be a function defined over the interval $[-1,1]$, then

a) Find the average rate of change of $f(x)$ over the given interval.

b) If $P(1,-3)$ is a point lies on the curve of $f(x)$, find the equation of the tangent line at P

Question2: Find $\lim_{x\to 4} \frac{4x-x^2}{\sqrt{x}-2}$

Question3: Let $f(x) = \sqrt{1-5x}$. Find an open interval about $x_0 = -3$ on which the inequality $|f(x) - 4| < 0.5$ holds, then give a number $\delta > 0$ such that for all x satisfying the inequality $0 < |x - x_0| < \delta \Rightarrow |f(x) - 4| < 0.5$