King **F**ahd **U**niversity for **P**etroleum and **M**inerals
Department of Mathematics & Statistics
Term 131 Math 101 (09 & 16) Quiz#5 (3.4 and 3.5)
Family Name: S.r#

Q1. Evaluate the limits

i. $\lim_{x\to\pi}\dfrac{\sin 2x}{x}$

ii. $\lim_{x\to 1}\dfrac{\tan(x-1)}{x^2-1}$

Q2. $\lim_{x\to\frac{-\pi}{2}}\dfrac{\cos(x)}{2x+\pi}$ represents a derivative of some function f at a point $x=a$. Find f and a.

Q3. Evaluate $\dfrac{d}{dx}\left(\dfrac{x\sin x}{\sec x}\right)$

Q4. The velocity of a body moving in a straight line is $v(t)=t^3-3t^2$ (m/sec).

a- When does the body changes the direction?

b- Find the speed of the body at each time the acceleration is zero.