King **F**ahd **U**niversity for **P**etroleum and **M**inerals
Department of Mathematics & Statistics
Term 131 Math 101 (09) Quiz#2 (2.4 & 2.5)
Family Name: S.r#

Q1. Evaluate $\lim_{x \to 1} \dfrac{\sin(\frac{\pi}{2}x)}{x}$

Q2. Find the value(s) of b that make $f(x)$ continuous everywhere, if $f(x) = \begin{cases} x^3 & , x < b \\ 8 & , b \le x \end{cases}$

Q3. What is the type of the discontinuity at $x = 1$, if $f(1)$ is undefined, $\lim_{x \to 1^+} f = 4$ and $\lim_{x \to 1^-} f = 2$?

Q4. Use the Intermediate Value Theorem to show that $f(x) = x^3 - x + 1$ has a root on [-2,0]

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Q1. Evaluate

i. $\lim_{x\to 1}\dfrac{sin(x-1)}{x^2-1}$

ii. $\lim_{x\to 1^+}[\![-x]\!]$

Q2. if $f(x)=\begin{cases}\dfrac{x^2}{x(x+1)} & ,x<0\\ 3 & ,x=0\\ \ln(1+x) & ,x>0\end{cases}$

(*a*) Evaluate $\lim_{x\to 0} f$

(*b*) Evaluate $f(0)$

(*c*) What is the type of the discontinuity at $x=0$?