

King Fahd University of Petroleum & Minerals
Department of Mathematics & Statistics -**Math101-Term072-Quiz2**

Name:

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Serial:

Q.1 Let $f(x) = \begin{cases} x^3 + x^2 - 1 & \text{if } x \leq -2 \\ -4x^2 - 8x & \text{if } x > -2 \end{cases}$ find $f'(x)$ (Use derivative rules)

Q2. Given that f is differentiable at c , let g be defined by: $g(x) = \begin{cases} f(x) & \text{if } x \leq c \\ f'(c)(x - c) + f(c) & \text{if } x > c \end{cases}$

use the derivative definition to find $g'(c)$ (Use limits only)

Q.3 Given that $f'(2) = 5$ find $\lim_{t \rightarrow 0} \frac{f(2+t^2-3t) - f(2)}{t}$