Department of Mathematics and Statistics KFUPM
MATH 101-09 Quiz#3, Time: 40 mins

Student's Name: _____ ID: _____Section No: **09**

Q.No.1:- Let $h(x) = 2g(x) + f\left(\sqrt{g(x)}\right)$ and $h'(-1) = 7$, $f'(3) = 18$, $g(-1) = 9$, the find the value of $g'(-1)$.

Final Answer (**2 point**): _____

Work Shown (**4 points**):

Q.No.2:- Find all the points on the graph of the function $f(x) = \cos^3 x - 3\sin^3 x$, $0 \leq x \leq 2\pi$ at which the tangent line is horizontal.

Final Answer (**2 point**): _____

Work Shown (**4 points**):

Q.No.3:- Find $\lim_{x\to 0} \frac{3\tan(2x)-5\tan(3x)}{7x\cos x+4\sin 5x}$.

Final Answer (**2 point**): _____

Work Shown (**5 points**):

Q.No.4:- Let $f(x) = \begin{cases} x^2, & x \leq -1 \\ mx + b, & x > -1 \end{cases}$. If the constants m and b make the function f differentiable everywhere, then find the values of m and b.

Final Answer (**2 point**): _____

Work Shown (**4 points**):

With Best Wishes