

Department of Mathematical Sciences
KFUPM
Term 041

MATH 101/ Quiz#5/ Time allowed=25 minutes

Name:

ID#:

Q 1 [2 marks]

Consider the equation $\cos(x) = k$, where $x \in [\pi, 2\pi]$ and $k \in [-1, 1]$. Express x in terms of k and the inverse of an appropriate trigonometric function.

Q 2 [2.5 marks]

Show that $\lim_{x \rightarrow 0} (1 + x)^{\frac{1}{x}} = e$.

Q 3 [5.5 marks]

let $f(x) = 5x^{7/5} - 35x^{2/5}$.

- Find the intervals on which f is increasing and those on which it is decreasing. Then find all relative extrema.
- Find the intervals on which f is concave up and those on which it is concave down. Find the inflection points if any.