Department of Mathematics and Natural Sciences

Quiz 1

Semester: Summer 2016

Course Title: Mathematics I: Differential Calculus and Coordinate Geometry

Course No.: MAT110

Section: 02

Student Name	:		Student ID	:	
Time	:	25 min	Date	:	May 22, 2016
Total marks	:	25	Marks Obtained	:	

Answer the following:

1. Find $g(3)$, $g(0)$, and $g(1)$. [03]

$$g(x) = \begin{cases} \sqrt{x+1}, & x > 1 \\ 3 & x < 1 \end{cases}$$

2. Find the natural domain and determine the range of each function. [08]

i) $f(x) = \dfrac{x}{|x|}$ ii) $F(x) = \sqrt{4 - x^2}$

3. Sketch the graph of the equation by translating, reflecting, compressing, and stretching the graph of $y = \sqrt{x}$. [05]

$$y = 1 - \sqrt{x-4}$$

4. Find formulas for $f \circ g$, and state the domain of composition. [05]

$$f(x) = \frac{1+x}{1-x}, \qquad g(x) = \frac{1}{x}$$

5. Find g and h such that $f = g \circ h$. [02]

$$f(x) = (x^3 + 1)^2$$

6. Classify the function as even, odd, or neither. [02]

$$f(x) = \frac{x^5 - x}{1 + x^2}$$