Math 151 - Quiz 1

August 26, 2015

Name key

Score

Show all work to receive full credit. Supply explanations when necessary.

1. (2 points) Is this relation a function? Explain.

$$\{(0,1),(1,1),(2,3),(3,7),(4,5),(1,1)\}$$

YES, EACH NUMBER IN THE DOMAIN $\{0,1,2,3,4\}$ IS PAIRED WITH EXACTLY ONE NUMBER IN THE RANGE $\{1,3,5,7\}$.

2. (2 points) What is the implied domain of the function $f(x) = 3 + \sqrt{x+4}$?

$x + 4 \geq 0$

$x \geq -4$

DOMAIN IS $[-4, \infty)$.

3. (3 points) Write the relation $\dfrac{3x+5y}{4} = 3$ as a function of x. Then state the domain and range.

$3x + 5y = 12$

$5y = -3x + 12$

$y = f(x) = -\frac{3}{5}x + \frac{12}{5}$

DOMAIN: $(-\infty, \infty)$

RANGE: $(-\infty, \infty)$

4. (3 points) Compute and simplify $g(x+a) - g(x)$ for $g(x) = x^2 + 3x$.

$[(x+a)^2 + 3(x+a)] - [x^2 + 3x]$

$= x^2 + 2ax + a^2 + 3x + 3a - x^2 - 3x$

$= 2ax + a^2 + 3a$