Name: Solution

MAC1105 Section 1A26
Quiz 8

Please show all of your work in a NEAT and ORGANIZED fashion.

1. (4 points) Determine whether the relation defines a function (JUSTIFY your answer), and give the domain and range.

$$y^2 = x + 10$$

$$y = \pm\sqrt{x+10}$$

The relation is NOT a function; one input x can give two outputs, $y = \sqrt{x+10}$ and $y = -\sqrt{x+10}$.

domain: $x \geq -10$ $\quad [-10, \infty)$

range: all real numbers OR $(-\infty, \infty)$

2. (3 points) Let $g(x) = x^2 + 3x - 6$. Find and simplify (a) $g(-2)$ and (b) $g(x+3)$.

a) $g(-2) = (-2)^2 + 3(-2) - 6$

$= 4 - 6 - 6$

$= \boxed{-8}$

b) $g(x+3) = (x+3)^2 + 3(x+3) - 6$

$= x^2 + 6x + 9 + 3x + 9 - 6$

$= \boxed{x^2 + 9x + 12}$

3. (3 points) Find the slope of the line through the points $(-1, 4)$ and $(5, -5)$ and simplify your answer.

$x_1\ y_1 \quad x_2\ y_2$

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{-5-4}{5+1}$$

$$= \frac{-9}{6}$$

$$= -\frac{3}{2}$$