MA125-8B Quiz 0

Name: Key

Exercise 1. *(6 points) Determine if the following functions are even, odd, or neither.*

(a) $f(x) = x^4 + 5x^2 - \cos(x)$

(b) $g(x) = x^5 + \sin(x)$

(c) $h(x) = x^2 - 3x + 1$

a) $f(-x) = (-x)^4 + 5(x^2) - \cos(-x) = x^4 + 5x^2 - \cos(x) = f(x)$ Even

b) $g(-x) = (-x)^5 + \sin(-x) = -x^5 - \sin(x) = -f(x)$ odd

c) $h(-x) = (-x)^2 - 3(-x) + 1 = x^2 + 3x + 1$

Since $h(-x) \neq h(x)$ and $h(-x) \neq -h(x)$, h is neither even nor odd.

Exercise 2. *(4 points) Determine the domain of the following functions.*

(a) $f(x) = \sqrt{x+3}$

(b) $g(x) = \frac{3x}{x^2+3x+2}$

a) Domain is where $x + 3 \geq 0$. Thus, $x \geq -3$ which is written as $[-3, \infty)$.

b) Domain is where $x^2 + 3x + 2 \neq 0$. We can find the points where $x^2 + 3x + 2 = 0$ and exclude those points.

$x^2 + 3x + 2 = 0$

$\Rightarrow (x+1)(x+2) = 0$

$\Rightarrow x = -1$ or $x = -2$

Domain: $(-\infty, -2) \cup (-2, -1) \cup (-1, \infty)$