MA125-6A 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) $g(x) = x + \sin^3(x)$

(c) $h(x) = x^2 - 5x + 3$

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

b) $g(-x) = (-x) + (\sin(-x))^3 = -x - \sin^3(x) = -g(x)$ Odd

c) $h(-x) = (-x)^2 - 5(-x) + 3 = x^2 + 5x + 3$

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

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

(a) $f(x) = \sqrt{x-2}$

(b) $g(x) = \frac{3x}{x^2+5x+4}$

a) Domain is where $x - 2 \geq 0$. That is, $x \geq 2$. We write this as $[2, \infty)$.

b) Domain is where $x^2 + 5x + 4 \neq 0$. We can find where $x^2 + 5x + 4 = 0$ and exclude those points.

$x^2 + 5x + 4 = 0$

$(x+4)(x+1) = 0$

$x = -4$ or $x = -1$

Domain: $(-\infty, -4) \cup (-4, -1) \cup (-1, \infty)$