MA125-6A Quiz 0

Name: Key

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

(a) $f(x) = 3x^4 + 2x^2 - 4$

(b) $g(x) = x^5 - 7x$

(c) $h(x) = x^4 - 3x^3 + 1$

a) $f(-x) = 3(-x)^4 + 2(-x)^2 - 4 = 3x^4 + 2x^2 - 4 = f(x)$ Even

b) $g(-x) = (-x)^5 - 7(-x) = -x^5 + 7x = -(x^5 - 7x) = -g(x)$ Odd

c) $h(-x) = (-x)^4 - 3(-x)^3 + 1 = x^4 + 3x^3 + 1$

So $h(-x) \neq h(x)$ & $h(-x) \neq -h(x)$, thus h is neither even or odd.

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

(a) $f(x) = \sqrt{x-5}$

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

a) Domain is where $x - 5 \geq 0$. Thus, $x \geq 5$. We can write this as $[5, \infty)$

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

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

$\Rightarrow (x+2)(x+1) = 0$ Domain: $(-\infty, -2) \cup (-2, -1) \cup (-1, \infty)$

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