Written Homework 1

Math 111

Due January 17th at the start of class

Textbook Exercises:

Section 1: 2, 4, 6, 8, 12, 22, 24, 26, 28, 32, 46, 48, 50

Exercise 1: Let $h(i) = 2i + 1$ for $i \geq 0$.

a) $(1, 3)$ is an ordered pair that matches an input to h with the corresponding output. Write three more (different) pairs.

b) What is the domain of h? Express your answer in interval notation.

c) What is the image of h? It may help to sketch a graph. Again, express your answer in interval notation.

d) What is $i(2x^2 + 3)$? Simplify your answer.

e) Is h directly proportional to i? Why or why not?

Exercise 2: A farmer wants to build an animal enclosure. She needs the total area to be 50 ft^2, and she wants the shape of the enclosure to be a rectangle, but she isn't sure what the length and width should be. She can use as much fencing material as she needs.

a) Given this information, if the farmer builds an enclosure that is l feet long and w feet wide, then l will be inversely proportional to w. Write an equation, including a constant of proportionality k, that relates l to w.

b) Using that equation, solve for the constant of proportionality, k.

c) Suppose the farmer wants to build a square enclosure. How many feet of fence will she use in total?

d) Treating l as a function of w, what is the mathematical domain of l? What is the practical domain?