CMPS 130 – Spring Quarter 2017 – Homework 1

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1 Exercises from pages 25, 26, and 27 of the book: 0.1 through 0.9

0.1

Examine the following formal descriptions of sets so that you understand which members they contain. Write a short informal English description of each set.

a. The infinite set of all positive odd integers, or the set of all odd natural numbers.

b. The infinite set of all even integers.

c. The infinite set of all even natural numbers.

d. The infinite set of all even natural numbers, and all natural numbers which are multiples of 3.

e. The infinite set containing all palindromic bit strings.

f. The finite set containing any integer n and $n + 1$. ========

0.2

Write formal descriptions of the following sets.

a. $\{1, 10, 100\}$

b. $\{n | n > 5$ for some $n \in \mathbb{Z}\}$

c. $\{1, 2, 3, 4\}$

d. $\{aba\}$

e. {""}

f. {}

0.3

Let A be the set $\{x, y, z\}$ and B be the set $\{x, y\}$.

a. No.

b. Yes.

c. $\{x, y, z\}$

d. $\{x, y\}$

e. {{x,x}, {x,y}, {y,x}, {y, y}, {z, x}, {z, y}}

f. {{}, {x}, {y}, {x,y}}

0.4

If A has a elements, and B has b elements, how many elements are in $A \times B$