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CSC400-802 Loop

Assignment HW#5-1

Section 6.1

1d. Neither $A \subseteq B$, nor $B \subseteq A$.

3C. Yes. Let $z \in T$, there exists an integer k that $z = 6k$. By algebra, $z = 6k = 3\cdot(2k)$. Hence ~~z~~ z can also be divisible by 3. Therefore, $z \in S$. Every element in T is also in S. Therefore, $T \subseteq S$.

4.a. No. For example, $5 \in A$ but $5 \notin B$. In set B, S should be some integers.

b. Yes. Let $m \in B$, there exists an integer S that $m = 20S$. By algebra, $m = 5\cdot(4S)$. Let $r = 4S$, then $m = 5r$. Hence $m \in A$. Every element of B is also an element of A. Therefore, $B \subseteq A$.

10f. $B - A = \{6\}$

g. $B \cup C = \{2, 3, 4, 6, 8, 9\}$

h. $B \cap C = \{6\}$

16b. $A \cap (B \cup C) = \{b, c\}$

$(A \cap B) \cup C = \{b, c, e\}$

$(A \cap B) \cup (A \cap C) = \{b, c\}$

$\therefore A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

35c. ~~$A \times (B \cap C) = \{(a,2), (b,2)\}$~~ $A \times (B \cap C) = \{(a,2), (b,2)\}$

d. $(A \times B) \cap (A \times C) = \{(a,2), (b,2)\}$

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