MATH 174, SELECTED HOMEWORK ANSWERS IN 5.1

2. No, but $4 \in \{4\}$.

5. (a) No   (b) Yes
  (c) Yes   (d) Yes

6. (a) Yes   (b) No, $1 \in \{1\}$
  (c) No, $\{2\} \subseteq \{1, 2\}$ (d) Yes
  (e) Yes   (f) No, $2 \in \{2\}$ but $2 \notin \{1, \{2\}, \{3\}\}$
  (g) Yes   (h) No, $\{1\} \in \{\{1\}, 2\}$
  (i) Yes   (j) Yes

7. (a) $\{a, b, c, d, f, g\}$ (b) $\{b, c\}$
  (c) $\{d, f, g\}$ (d) $\{a\}$

13. (a) No, $4 \in R$ and $4 \notin T$.   (b) Yes, an integer divisible by 6 is divisible by 2.
   (c) Yes, an integer divisible by 6 is divisible by 3.   (d) $R \cap S = T$, an integer is divisible by 2 and 3 if and only if it is divisible by 6.

17. (d) $\{(a, a), (a, b), (b, a), (b, b)\}$