

# Solutions

## Quiz 4: Section 2.2

1. (2 points each) Let  $A = \{2, 3, 4\}$  and  $B = \{3, 4, 5, 6\}$ , and suppose the universal set is  $U = \{1, 2, \dots, 9\}$ . List all the elements in the following sets.

(a)  $(A \cup B)'$

(b)  $(A \cap B) \times A$

(c)  $P(B \setminus A)$

$$(a) A \cup B = \{2, 3, 4, 5, 6\} \Rightarrow (A \cup B)' = \{1, 7, 8, 9\}$$

$$(b) (A \cap B) \times A = \{3, 4\} \times \{2, 3, 4\} = \{(3, 2), (3, 3), (3, 4), (4, 2), (4, 3), (4, 4)\}$$

$$(c) P(B \setminus A) = P(\{5, 6\}) = \{\emptyset, \{5\}, \{6\}, \{5, 6\}\}$$

2. (4 points) List all of the elements  $S \in P(\{1, 2, 3, 4\})$  such that  $|S| = 3$ .

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