page 12 Exercises #1-16

#1 $A \cup B = \{1, 2, 3, 4, 5, 7, 10\}$

#2 $B \cap C = \{2, 4\}$

#3 $A - B = \{7, 10\}$

#4 $B - A = \{2, 3, 5\}$

#5 $\overline{A} = \{2, 3, 5, 6, 8, 9\}$

#6 $U - C = \{1, 3, 5, 7, 9, 10\}$

#7 $\overline{U} = \emptyset$

#8 $A \cup \emptyset = A = \{1, 4, 7, 10\}$

#9 $B \cap \emptyset = \emptyset$

#10 $A \cup \overline{A} = U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

#11 $B \cap U = B = \{1, 2, 3, 4, 5\}$

#12 $A \cap (B \cup C) = A \cap \{1, 2, 3, 4, 5, 6, 8\}$
$$= \{1, 4\}$$

#13 $\overline{B} \cap (C - A) = \overline{B} \cap \{2, 4, 8\} = \{6, 8\}$

#14 $(A \cap B) - C = \{1, 4\} - C = \{1\}$

#15 $\overline{A \cap B} \cup C = \{2, 3, 5, 6, 7, 8, 9, 10\} \cup C = \{2, 3, 4, 5, 6, 7, 8, 9, 10\}$

#16 $(A \cup B) - (C - B) = \{1, 2, 3, 4, 5, 7, 10\} - \{6, 8\}$
$$= \{1, 2, 3, 4, 5, 7, 10\}$$