

Homework 4

1. Let $A = \{1, 2, 3, 4, 5\}$ and $B = \{3, 4, 5, 6\}$. Please compute the following:
 - a. $A \cup B$
 - b. $A \cap B$
 - c. $A - B$
 - d. $B - A$
 - e. $A \times B$
 - f. $B \times A$
 - g. the power set of A

2. True or False. For each of the following statements, determine whether the statement is true or false. If it is true, please supply a proof like what we've done in class. If the statement is false, please present a counterexample that violates the statement. Let A, B and C be sets.
 - a. $A - (B - C) = (A - B) - C$
 - b. If $A \cup C = B \cup C$ then $A = B$.
 - c. If $A \cap C = B \cap C$ then $A = B$.
 - d. If $A = B - C$ then $B = A \cup C$.
 - e. $|A - B| = |A| - |B|$.
 - f. $(A - B) \cup B = A$.
 - g. $(A \cup B) - B = A$.

3. Sec. 2.2: 2, 18, 26, 48.