Exam 2  Part II  Sets

1. \((A \cap B)^c\) or \(A^c \cup B^c\) or...

2. \(\{x | x \in A \text{ and } x \notin B\}\)

3. \(n(U) = 100, n(T) = 80\)
\(n(P) = 40, n(T \cup P) = 90\)
\(n(T \cap P) = n(T) + n(P) - n(T \cup P)\)
\(90 = 80 + 40 - n(T \cap P)\)
\(n(T \cap P) = 30\)
\(n(T \cap P^c) = 50\)

4. \(n(P \cap B) = 55\)
\(n(C^c) = 130\)
\(n(P \cap B \cap C) = 30\)
\(n(B \cap C^c) = 35\)
\(n(P \cap B^c \cap C^c) = 55\)
\(n(\text{exactly two}) = 60\)
\(n(C \cap P \cap B^c) = 15\)

OR

\(200 = a + b + c + d + e + f + g + h\)
\(55 = b + e\)
\(130 = a + b + c + h\)
\(30 = e\)
\(35 = b + c\)
\(55 = a\)
\(60 = b + d + f\)
\(15 = d\)

Solve as 8 eqn 8 variables with RREF
5a) 

6. a) True \( b/c \quad \emptyset \quad BnC = \emptyset \)
   b) False \( b/c \quad \{1\} \subseteq A \) or \( 1 \in A \)
   c) False \( b/c \quad B \subseteq B \) is true
   d) False \( b/c \quad 3, 5 \in C \) or \( \{3, 5\} \subseteq C \)
   e) False \( b/c \quad A \cap B = \{2\} \)
   f) False \( b/c \quad \text{AUC} = \{1, 2, 3, 5, 7\} \)
   - don't put true