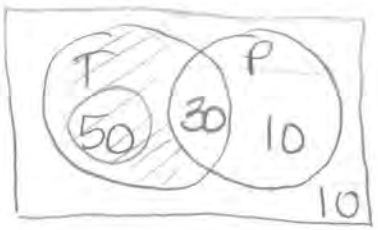
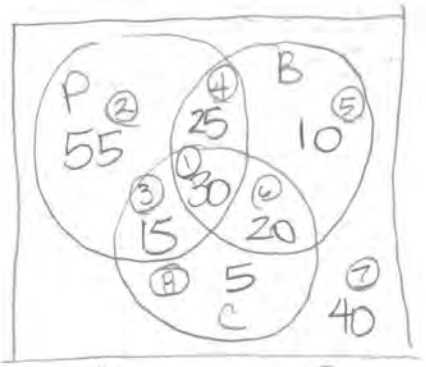
Exam 2 Part II Sets

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

2. $\{x \mid x \in A \text{ and } x \notin B\}$

3. 

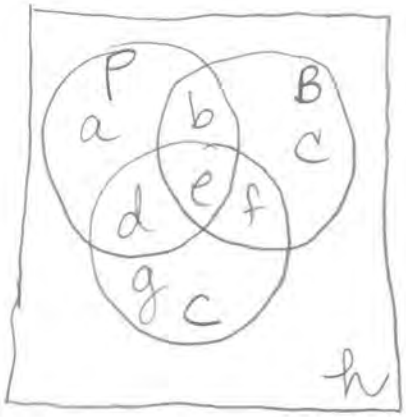
$n(U) = 100$, $n(T) = 80$
$n(P) = 40$, $n(T \cup P) = 90$
$n(T \cup P) = n(T) + n(P) - n(T \cap P)$
$90 = 80 + 40 - n(T \cap P)$
$\Rightarrow n(T \cap P) = 30$. $n(T \cap P^c) = 50$

4. 

$n(U) = 200$ ⑧

$n(P \cap B) = 55$ ④
$n(C^c) = 130$ ⑦
$n(P \cap B \cap C) = 30$ ①
$n(B \cap C^c) = 35$ ⑤
$n(P \cap B^c \cap C^c) = 55$ ②
$n(\text{exactly two}) = 60$ ⑥
$n(C \cap P \cap B^c) = 15$ ③

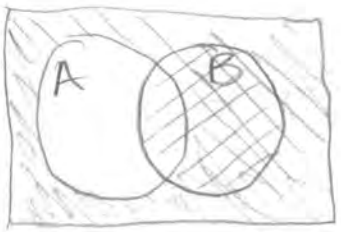
OR



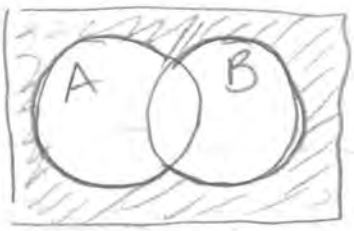
$200 = a+b+c+d+e+f+g+h$
$55 = b+e$
$130 = a+b+c+h$
$30 = e$
$35 = b+c$
$55 = a$
$60 = b+d+f$
$15 = d$

solve as 8 eqn & 8 variables with RREF

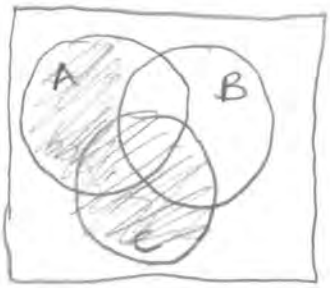
5a)



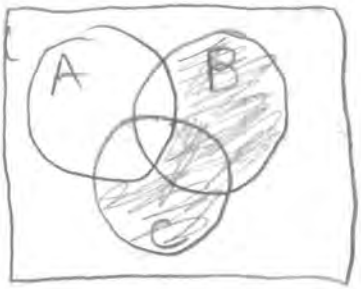
b)



c)



d)



6. a) TRUE b/c $B \cap C = \emptyset$
b) False b/c $\{1\} \subseteq A$ or $1 \in A$
c) False b/c $B \subseteq B$ is true
d) False b/c $3, 5 \in C$ or $\{3,5\} \subset C$
e) False b/c $A \cap B = \{2\}$
f) False b/c $A \cup C = \{1, 2, 3, 5, 7\}$
↳ don't put twice