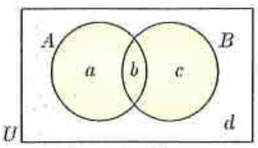
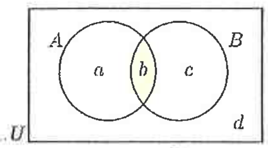
Probability Day 5: Notes Name: ________________________ Date: ________

Union: "OR" Intersection: "AND" Complement: "NOT"



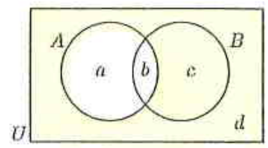
$A \cup B$

union symbol



$A \cap B$

intersection symbol

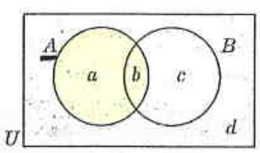


A'

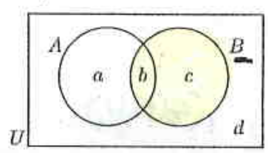
complement symbol

1. On separate Venn diagrams containing two events A and B that intersect, shade the region representing:

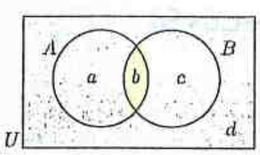
   a in A b in B
   c in both A and B d in A or B
   e in B but not in A f in exactly one of A or B.



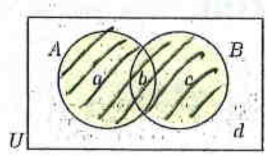
A



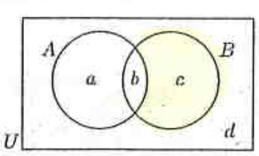
B



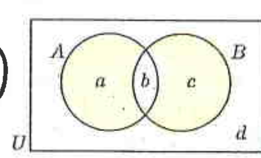
$A \cap B$



$A \cup B$



$B-(A\cap B)$



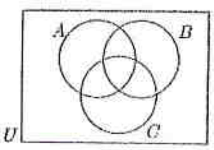
$(A \cup B)-(A\cap B)$

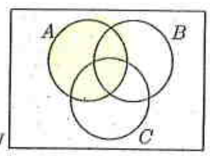
$a+c-b$

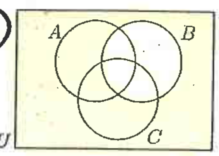
2. The diagram alongside is the most general case for three events in the same sample space U.
On separate Venn diagram sketches, shade:

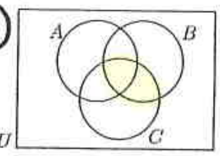
and

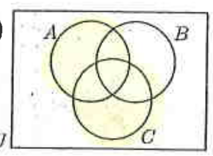
a A b B' c $B \cap C$
d $A \cup C$ e $A \cap B \cap C$ f $(A \cup B) \cap C$

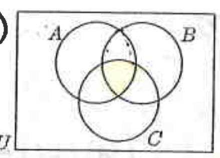


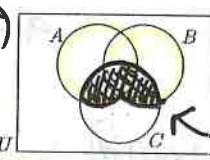
a) 

b) 

c) 

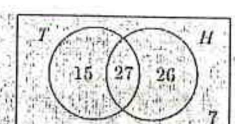
d) 

e) 

f) 

answer

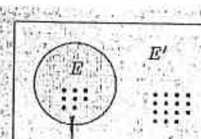
3. If the Venn diagram alongside illustrates the number of people in a sporting club who play tennis (T) and hockey (H), determine the number of people:



a in the club $15+27+26+7=75$
b who play hockey $26+27 = B = 53$
c who play both sports $T \cap H = 27$
d who play neither sport 7
e who play at least one sport $T \cup H = 68$
$(T \cup H)'$

4. The Venn diagram alongside represents the set U of all children in a class. Each dot represents a student. The event E shows all those students with blue eyes. Determine the probability that a randomly selected child:

a has blue eyes
b does not have blue eyes



8
15 = 23

$\frac{8}{23}$ $\frac{15}{23}$