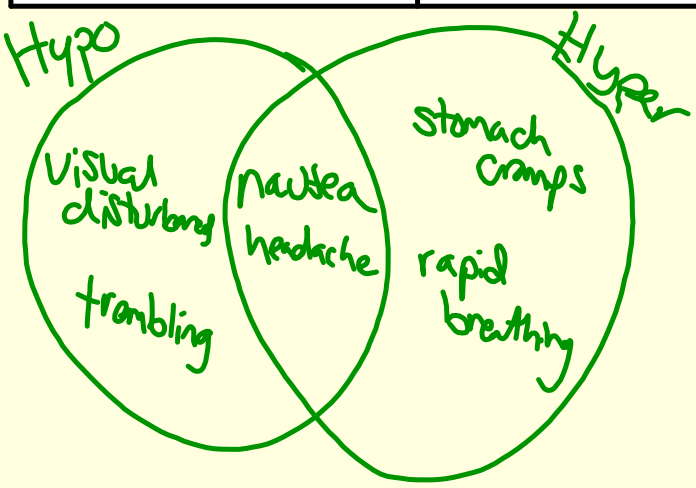
8.2 Venn Diagrams

Medical Diagnosis

Hypoglycemia (too little sugar)	Hyperglycemia (too much sugar)
Nausea	Headache
Visual disturbances	Stomach cramps
Trembling	Nausea
Headache	Rapid breathing



What does the set { nausea, headache } represent?

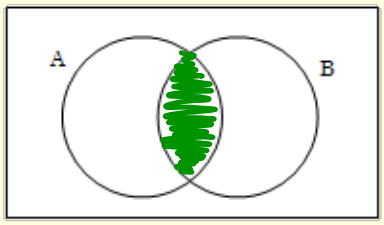
overlap/intersection of both hypo/hyperglycemia

What does the set { nausea, visual disturbances, trembling, headache, stomach cramps, rapid breathing } represent?

entire set

Intersection and Union

If A and B are sets, the intersection of A and B, denoted by $A \cap B$, is the set of all elements that are common to both A and B.

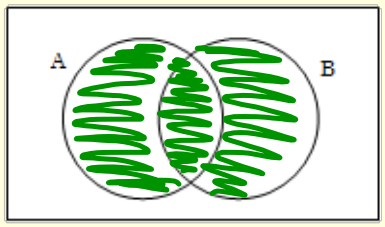


$A \cap B$

The intersection set contains only the elements that overlap the two sets.

and

If A and B are sets, the union of A and B, denoted by $A \cup B$, is the set of all elements that are either in A or in B or in both A and B.

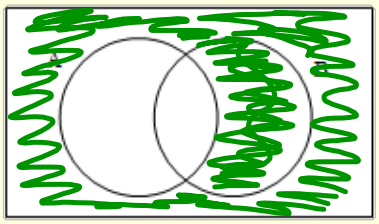


$A \cup B$

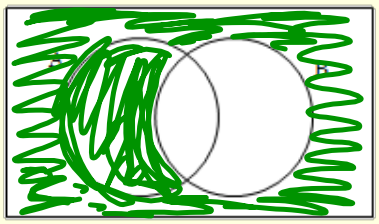
The union set contains all of the elements from the two sets.

or

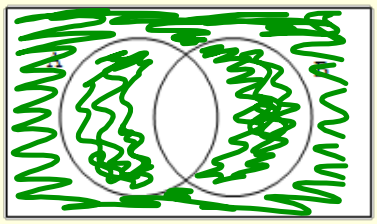
A'



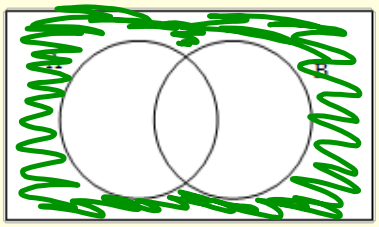
B'



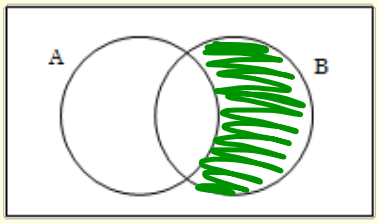
$(A \cap B)'$



$(A \cup B)'$

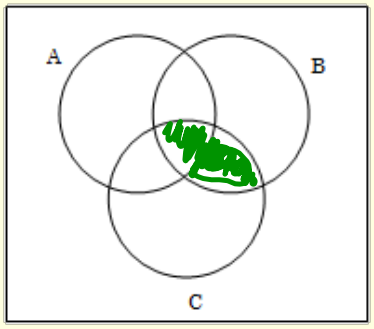


$A' \cap B$

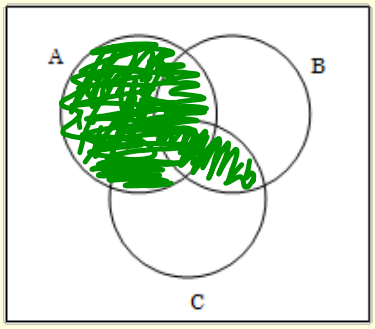


U

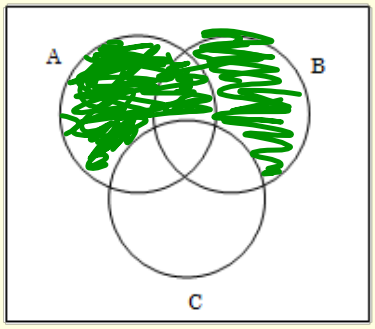
$(B \cap C)$



$A \cup (B \cap C)$



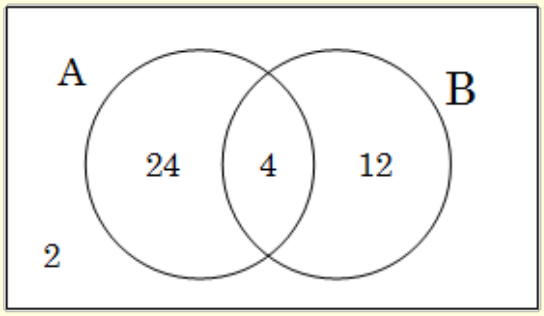
$(A \cup B) \cap C'$



Venn diagrams can also be used to show the number of elements in different sets.

The notation $n(A)$ means "the number of elements in set A"

Given the Venn diagram below:

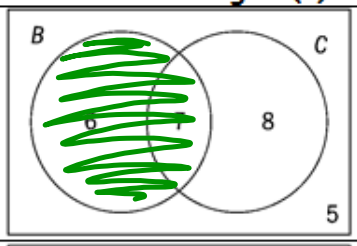
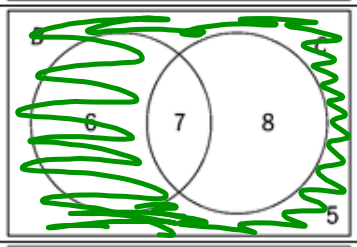
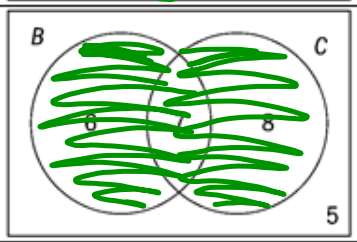


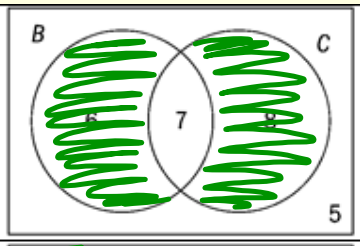
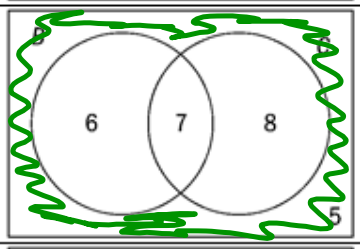
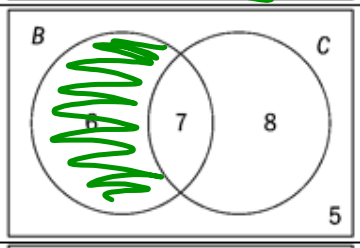
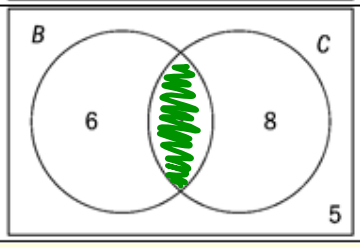
a) Find $n(U)$. 42

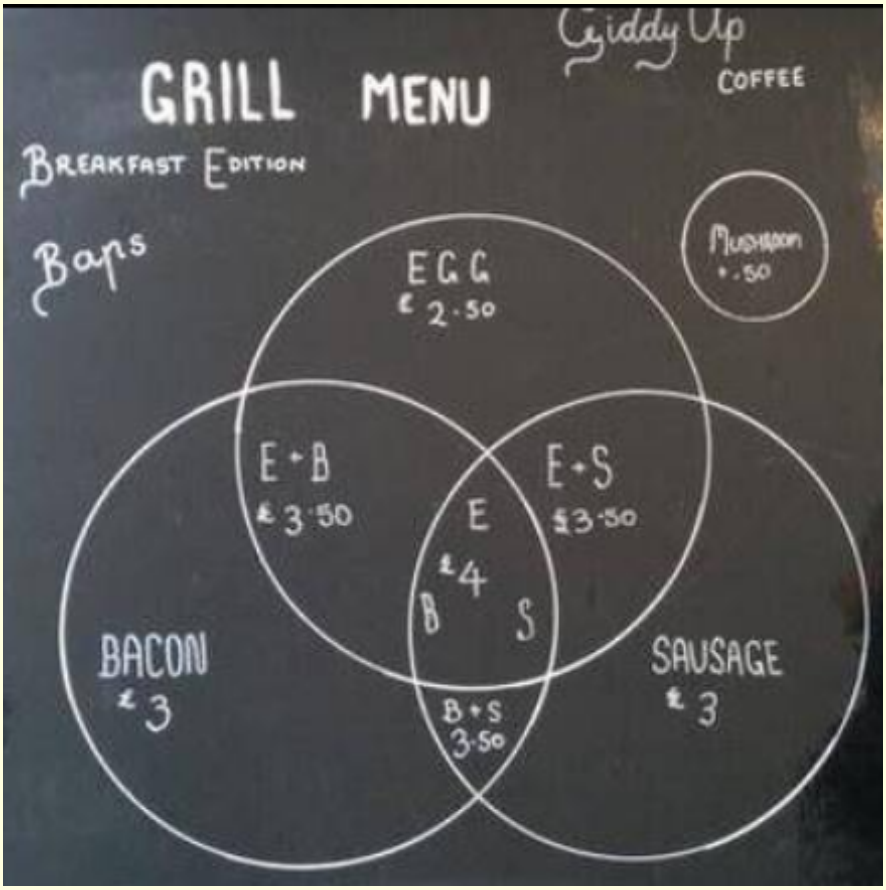
b) Find $n(A \cap B)$. 4

c) Find $n(A \cup B)$. 40

d) Find $n(A')$. 14

Answer the Question	Shade the Region(s)	Describe with Set Notation
1. How many students study Biology? 13		B
2. How many students do not study Chemistry? 11		C′
3. How many students study Biology or Chemistry? 21		B ∪ C

4. How many students study Biology or Chemistry, but not both? 14		$(B \cup C) \cap (B \cap C)'$
5. How many students study neither biology nor chemistry? 5		$(B \cup C)'$
6. How many students study Biology only? 6		$B \cap C'$
7. How many chemists study biology? 7		$B \cap C$


GRILL MENU
Giddy Up
COFFEE
BREAKFAST EDITION
Baps
Mushroom
+.50
EGG
£2.50
E+B
£3.50
E+S
£3.50
E
£4
B
S
BACON
£3
B+S
3.50
SAUSAGE
£3