



# Venn Diagrams



SCAN ME

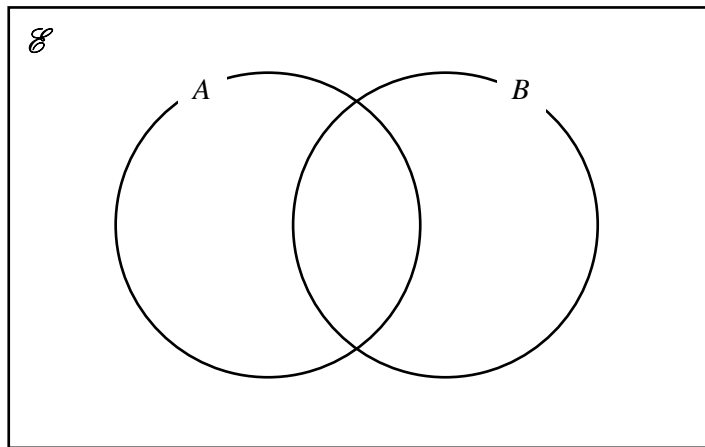
REVISE THIS TOPIC

CHECK YOUR ANSWERS

SCAN ME

- 1  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$   
 $A = \{1, 4, 6, 8, 9, 10\}$   
 $B = \{3, 4, 8\}$

(a) Complete the Venn diagram for this information.



(3)

A number is chosen at random from the universal set,  $\mathcal{E}$

(b) Find the probability that this number is in the set  $B$

..... (2)

(c) Find the probability that this number is in the set  $A \cap B$

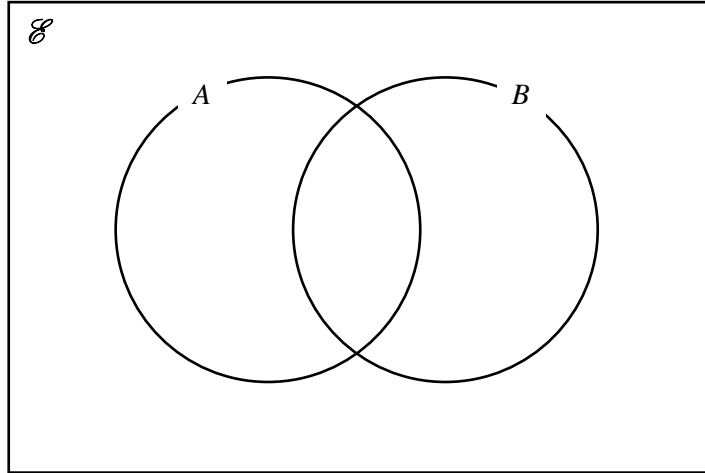
..... (2)

(Total for Question 1 is 7 marks)



- 2  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$   
 $A = \{5, 7, 8, 9, 10\}$   
 $B = \{1, 2, 5, 6, 7, 8, 12\}$

(a) Complete the Venn diagram for this information.



(3)

A number is chosen at random from the universal set,  $\mathcal{E}$

(b) Find the probability that this number is in the set  $B'$

..... (2)

(c) Find the probability that this number is in the set  $A \cap B$

..... (2)

(d) Find the probability that this number is in the set  $A \cup B$

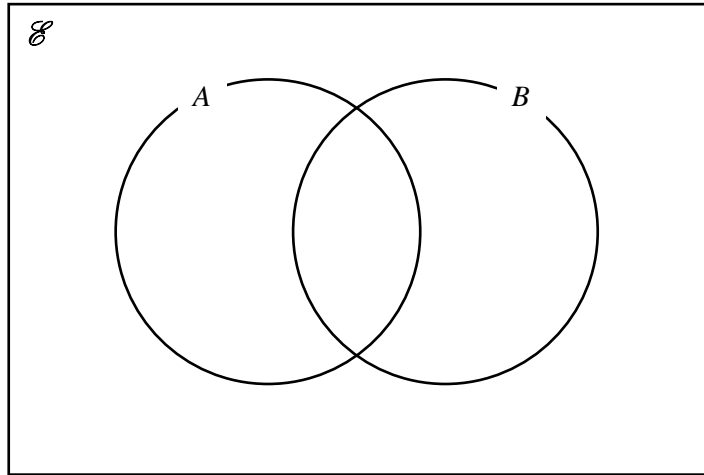
..... (2)

(Total for Question 2 is 9 marks)



- 3  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15\}$   
 $A = \{1, 2, 4, 5, 8, 9, 10, 14\}$   
 $B = \{4, 5, 7, 10, 11, 14, 15\}$

(a) Complete the Venn diagram for this information.



(3)

A number is chosen at random from the universal set,  $\mathcal{E}$

(b) Find the probability that this number is in the set  $A'$

.....  
(2)

(c) Find the probability that this number is in the set  $A \cup B$

.....  
(2)

(d) Find the probability that this number is in the set  $A \cap B$

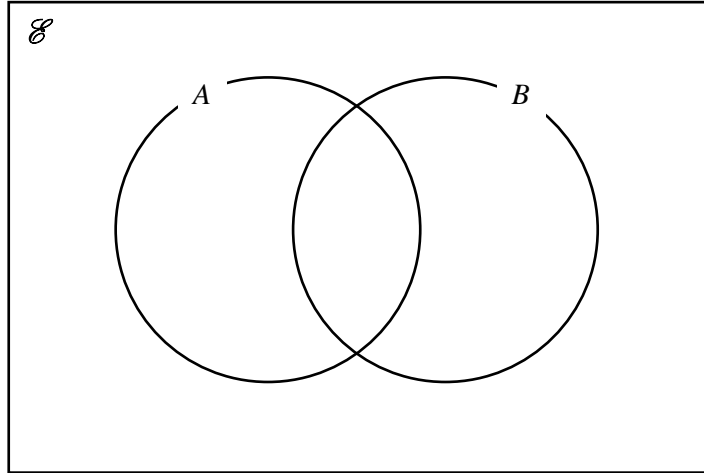
.....  
(2)

(Total for Question 3 is 9 marks)



- 4  $\mathcal{E} = \{\text{even numbers less than } 20\}$   
 $A = \{2, 4, 10, 18\}$   
 $B = \{2, 4, 6, 8, 10, 14\}$

(a) Complete the Venn diagram for this information.



(3)

A number is chosen at random from the universal set,  $\mathcal{E}$

(b) Find the probability that this number is in the set  $A$

.....  
(2)

(c) Find the probability that this number is in the set  $A \cap B$

.....  
(2)

(d) Find the probability that this number is in the set  $A \cup B$

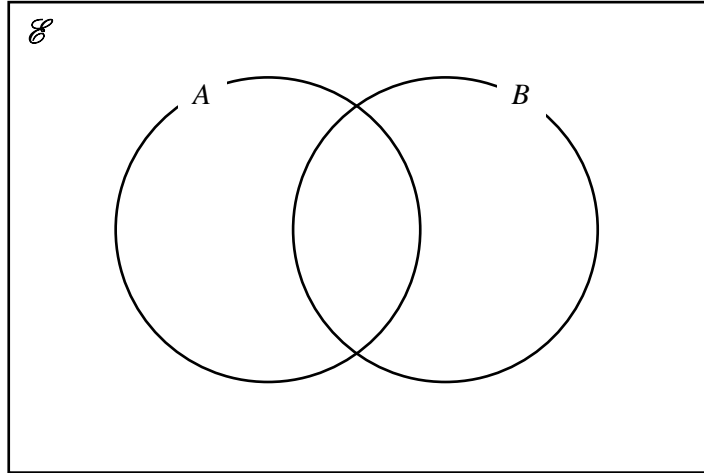
.....  
(2)

(Total for Question 4 is 9 marks)



- 5  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$   
 $A = \{\text{square numbers}\}$   
 $B = \{\text{odd numbers}\}$

(a) Complete the Venn diagram for this information.



(3)

A number is chosen at random from the universal set,  $\mathcal{E}$

(b) Find the probability that this number is in the set  $\mathcal{E}$

.....  
(1)

(c) Find the probability that this number is in the set  $A \cap B$

.....  
(2)

(d) Find the probability that this number is in the set  $B'$

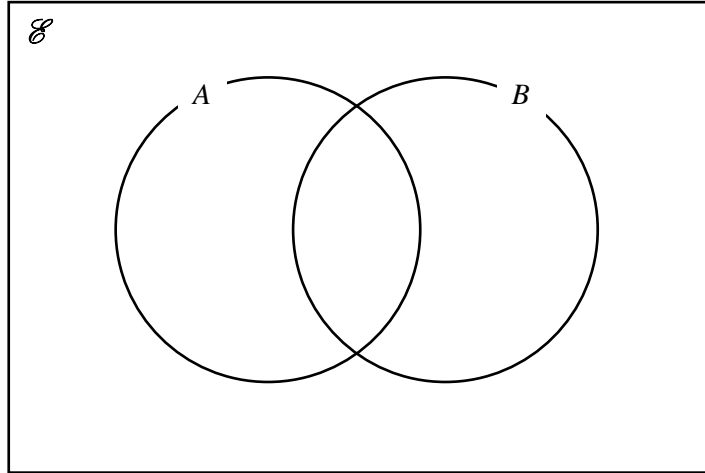
.....  
(2)

(Total for Question 5 is 8 marks)



- 6  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$   
 $A = \{\text{multiples of } 4\}$   
 $B = \{\text{factors of } 12\}$

(a) Complete the Venn diagram for this information.



(3)

A number is chosen at random from the universal set,  $\mathcal{E}$

(b) Find the probability that this number is in the set  $A \cap B$

.....  
(2)

(c) Find the probability that this number is in the set  $A'$

.....  
(2)

(d) Find the probability that this number is in the set  $A \cup B$

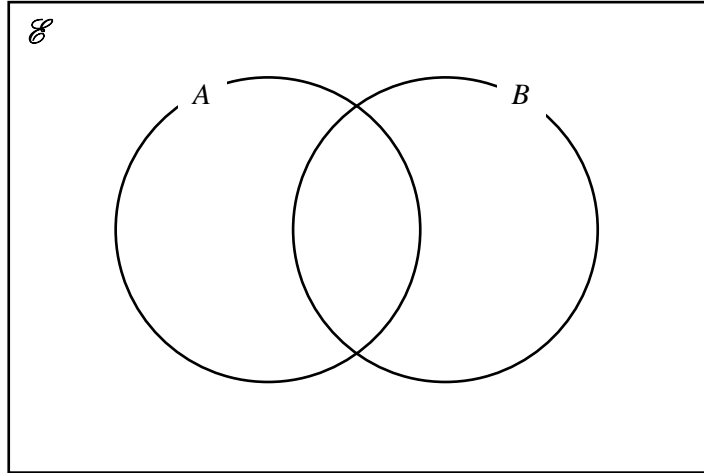
.....  
(2)

(Total for Question 6 is 9 marks)



- 7  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15\}$   
 $A = \{\text{prime numbers}\}$   
 $B = \{\text{numbers greater than } 10\}$

(a) Complete the Venn diagram for this information.



(3)

A number is chosen at random from the universal set,  $\mathcal{E}$

(b) Find the probability that this number is in the set  $A \cup B$

.....  
(2)

(c) Find the probability that this number is in the set  $B'$

.....  
(2)

(d) Find the probability that this number is in the set  $A \cap B$

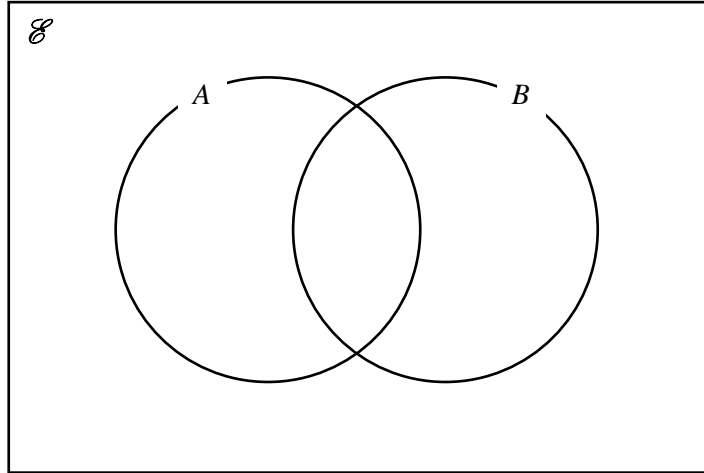
.....  
(2)

(Total for Question 7 is 9 marks)



- 8  $\mathcal{E} = \{\text{square numbers less than } 50\}$   
 $A = \{\text{odd numbers}\}$   
 $B = \{\text{factors of } 36\}$

(a) Complete the Venn diagram for this information.



(3)

A number is chosen at random from the universal set,  $\mathcal{E}$

(b) Find the probability that this number is in the set  $A$

.....  
(2)

(c) Find the probability that this number is in the set  $A \cup B$

.....  
(2)

(d) Find the probability that this number is in the set  $A \cap B$

.....  
(2)

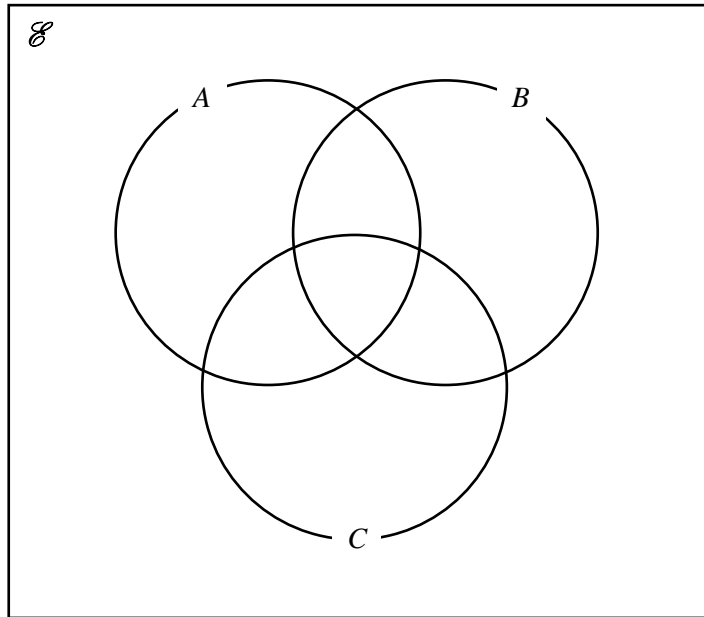
(Total for Question 8 is 9 marks)





- 9  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$   
 $A = \{5, 7, 10, 12\}$   
 $B = \{1, 3, 5, 9, 11, 12\}$   
 $C = \{2, 3, 4, 5, 7\}$

(a) Complete the Venn diagram for this information.



(4)

A number is chosen at random from the universal set,  $\mathcal{E}$

(b) Find the probability that this number is in the set  $A \cup B$

.....

(2)

(c) Find the probability that this number is in the set  $B \cap C$

.....

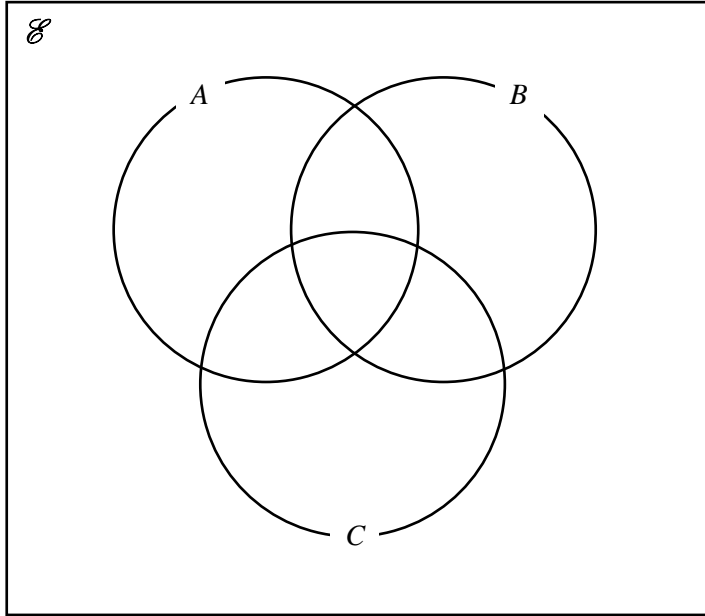
(2)

(Total for Question 9 is 8 marks)



- 10**  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15\}$   
 $A = \{\text{prime}\}$   
 $B = \{\text{odd numbers}\}$   
 $C = \{\text{numbers less than } 10\}$

(a) Complete the Venn diagram for this information.



(4)

A number is chosen at random from the universal set,  $\mathcal{E}$

(b) Find the probability that this number is in the set  $A \cap B \cap C$

.....

(2)

(c) Find the probability that this number is in the set  $A \cup B \cup C$

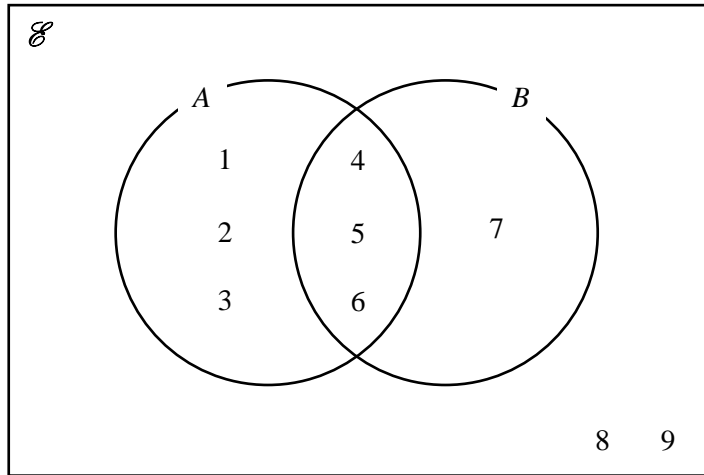
.....

(2)

(Total for Question 10 is 8 marks)



11 Here is a Venn diagram.



(a) Write down the numbers that are in set  $A'$

..... (1)

(b) Write down the numbers that are in set  $A \cup B$

..... (1)

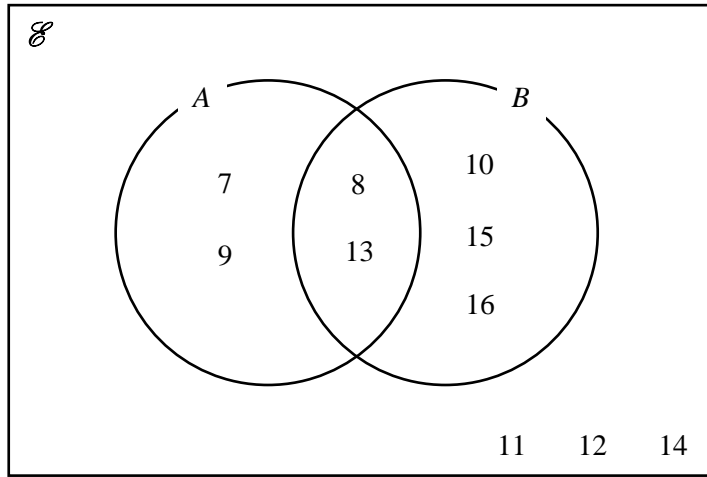
(c) Write down the numbers that are in set  $A \cap B$

..... (1)

(Total for Question 11 is 3 marks)



12 Here is a Venn diagram.



(a) Write down the numbers that are in set  $B'$

..... (1)

(b) Write down the numbers that are in set  $\mathcal{E}$

..... (1)

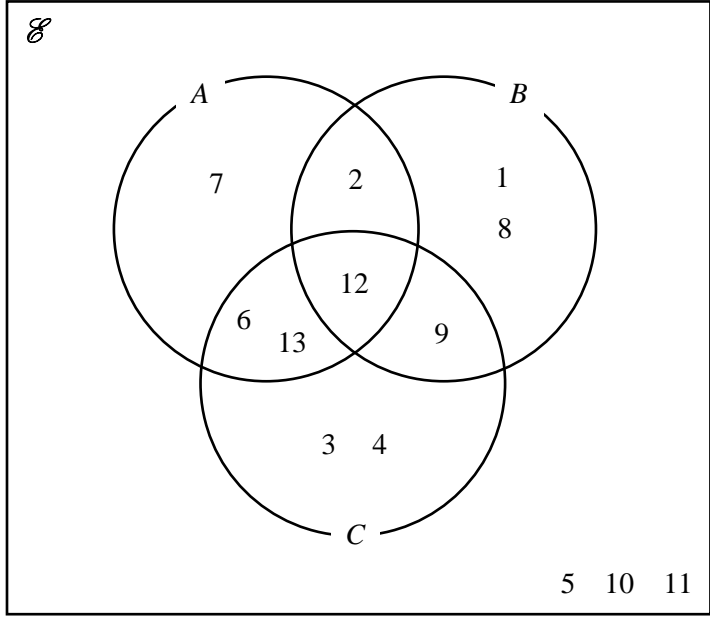
(c) Write down the numbers that are in set  $A \cap B$

..... (1)

(Total for Question 12 is 3 marks)



13 Here is a Venn diagram.



(a) Write down the numbers that are in set  $B'$

..... (1)

(b) Write down the numbers that are in set  $A \cup C$

..... (1)

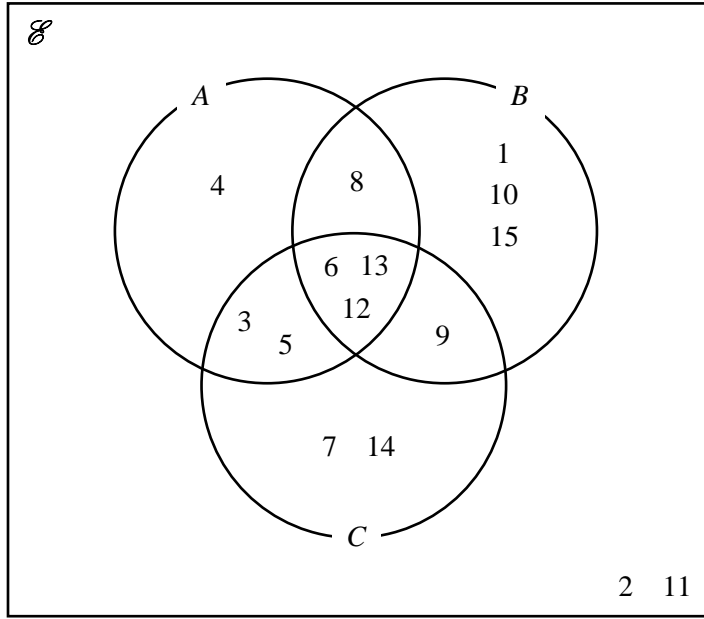
(c) Write down the numbers that are in set  $A \cap B \cap C$

..... (1)

(Total for Question 13 is 3 marks)



14 Here is a Venn diagram.



(a) Write down the numbers that are in set  $A$

..... (1)

(b) Write down the numbers that are in set  $A \cup B \cup C$

..... (1)

(c) Write down the numbers that are in set  $B \cap C$

..... (1)

(Total for Question 14 is 3 marks)

