

# Venn Diagrams and Set Notation

For Pearson Edexcel GCSE Mathematics (1MA1) • Foundation tier

Name \_\_\_\_\_

Total marks: **25**

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Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

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

(a) List the members of  $A \cap B$ .

.....  
(1)

(b) List the members of  $A \cup B$ .

.....  
(1)

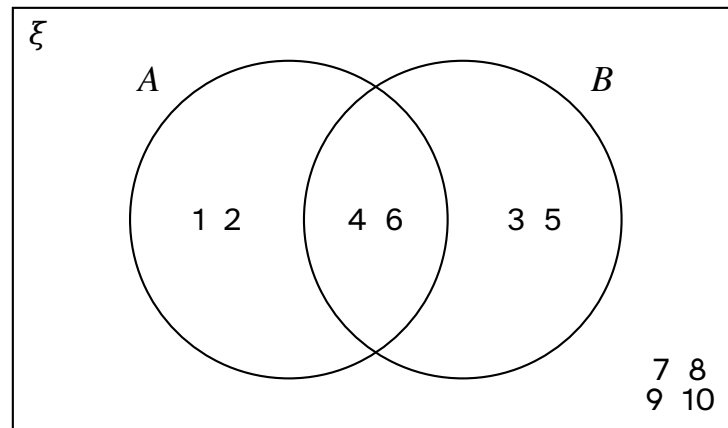
(c) List the members of  $B'$ .

.....  
(1)

**(Total for Question 1 is 3 marks)**

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2 Here is a Venn diagram.



(a) List the members of  $A \cap B$ .

.....  
(1)

(b) List the members of  $A'$ .

.....  
(1)

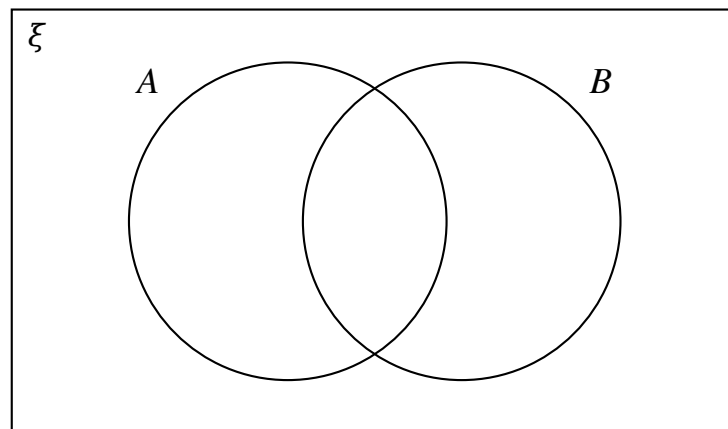
(c) A number is chosen at random from  $\xi$ .  
Find the probability that the number is in  $A \cup B$ .

.....  
(2)

**(Total for Question 2 is 4 marks)**

- 3**     $\xi = \{\text{whole numbers from 1 to 16}\}$   
           $A = \{\text{square numbers}\}$   
           $B = \{\text{prime numbers}\}$

(a) Complete the Venn diagram for this information.



(4)

- (b) One of the numbers in  $\xi$  is chosen at random.  
 Find the probability that the number is in  $A \cup B$ .

.....  
 (2)

**(Total for Question 3 is 6 marks)**

**4**     $\xi = \{\text{whole numbers from 1 to 12}\}$

$A = \{\text{factors of 18}\}$

$B = \{\text{even numbers}\}$

Ravi is going to show this information on a Venn diagram.

(a)    Write down the numbers that go in  $A \cap B$ , the overlap of the two circles.

.....  
(1)

(b)    Write down the numbers that go outside both circles.

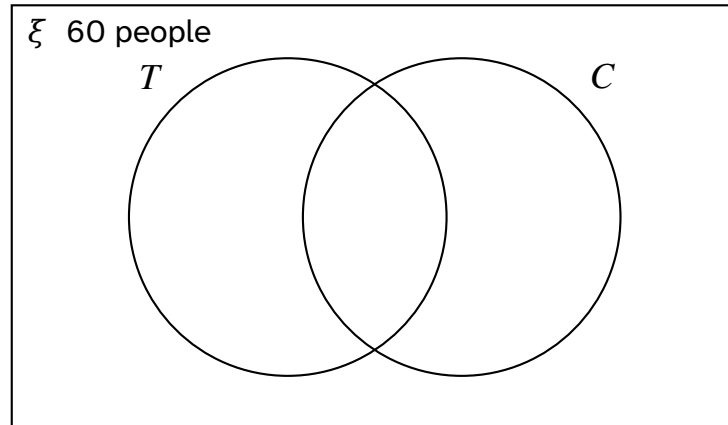
.....  
(1)

**(Total for Question 4 is 2 marks)**

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- 5** 60 people were asked if they drank tea ( $T$ ) or coffee ( $C$ ) yesterday.  
 38 of the people drank tea.  
 27 of the people drank coffee.  
 8 of the people drank neither tea nor coffee.

(a) Complete the Venn diagram.



(3)

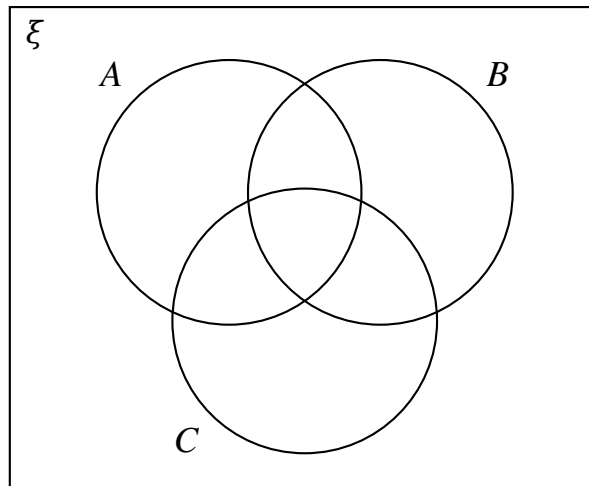
- (b) One of the 60 people is chosen at random.  
 Find the probability that this person had tea but not coffee.

.....  
 (1)

**(Total for Question 5 is 4 marks)**

- 6**  $\xi = \{\text{whole numbers from 1 to 15}\}$   
 $A = \{\text{even numbers}\}$   
 $B = \{\text{multiples of 3}\}$   
 $C = \{\text{factors of 12}\}$

(a) Complete the Venn diagram for this information.



(4)

- (b) A number is chosen at random from  $\xi$ .  
Find the probability that the number is a member of  $A \cap C$ .

.....  
(2)

**(Total for Question 6 is 6 marks)**