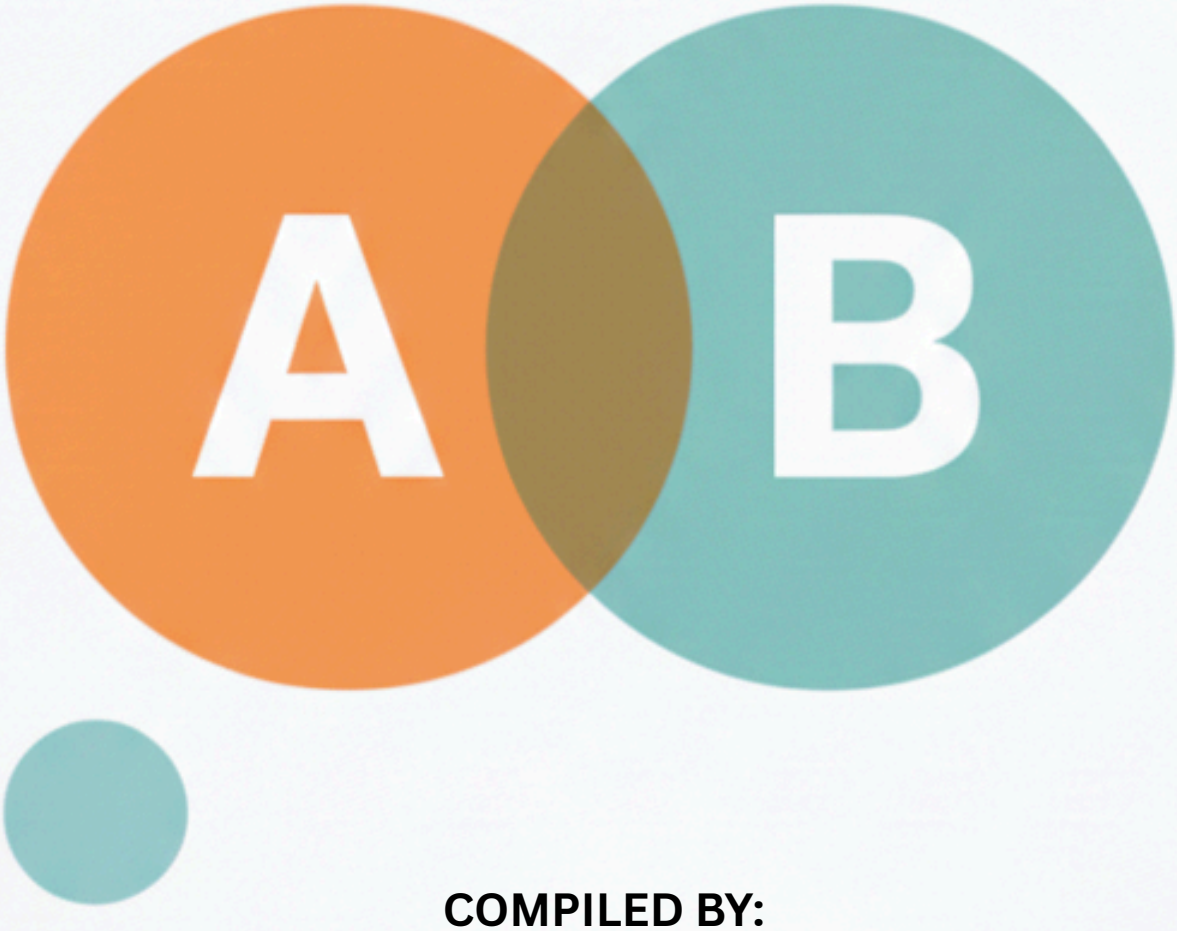
EDEXCEL IGCSE MATHEMATICS

UNIT 1 (MODULAR)

NUMBER – SETS

QP & MS (2018 - 2025)



COMPILED BY:
SIR MUHAMMAD ABDULLAH SHAH

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1. June 2025 1HR/Q5

$A = \{2, 4, 6, 8, 10, 12\}$

$B = \{3, 6, 9, 12\}$

$C = \{1, 3, 5, 7, 9, 11\}$

(a) List the members of the set

(i) $A \cup B$

.....

(ii) B'

.....

(2)

$\mathscr{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$

$A = \{2, 4, 6, 8, 10, 12\}$

$B = \{3, 6, 9, 12\}$

$C = \{1, 3, 5, 7, 9, 11\}$

$\mathscr{E}$	$\cap$	$\cup$	$\varnothing$	$\in$	$\notin$

(b) Write a symbol from the box on each dotted line to make each of the following a true statement.

(i) $A \cap C =$ .....

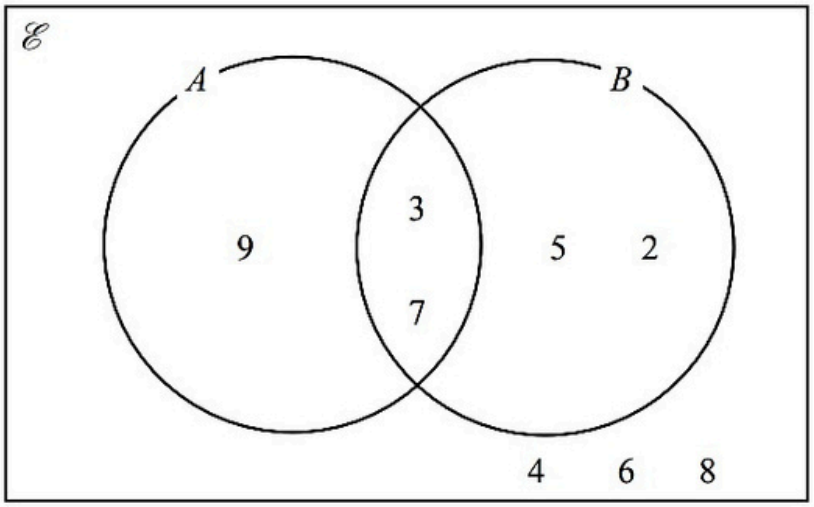
(ii) 13 ..... $\mathscr{E}$

(2)

(Total for Question 5 is 4 marks)

2. Nov 2024 1H/Q4

Here is a Venn diagram.

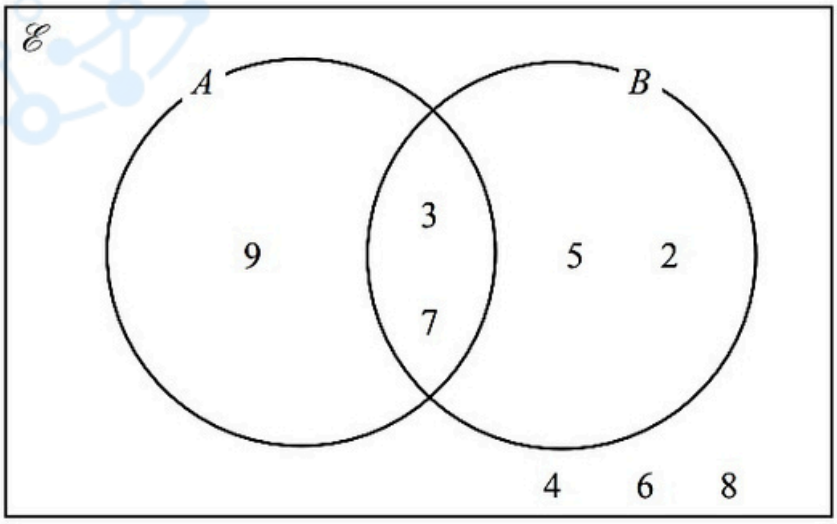


(a) List the members of the set B

.....

(1)

Here is a Venn diagram.

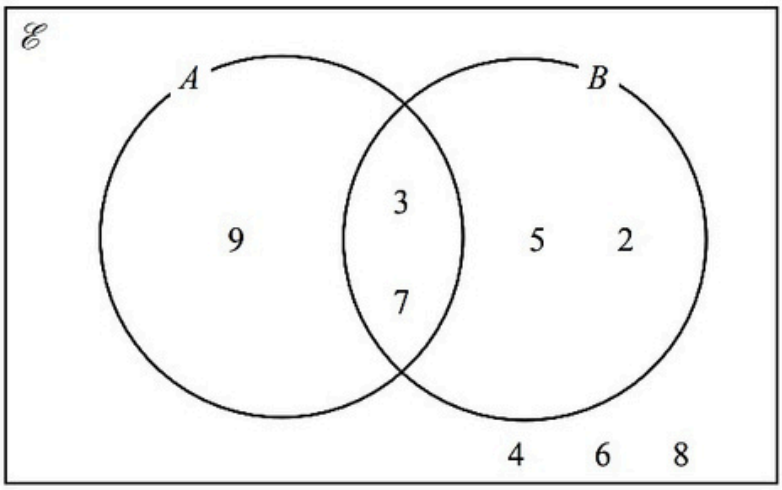


(b) List the members of the set $A \cap B$

.....

(1)

Here is a Venn diagram.



(c) List the members of the set A'

.....

(1)

3. June 2024 1H/Q7

$\mathscr{E} = \{23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34\}$
$A = \{\text{even numbers}\}$
$B = \{23, 29, 31\}$
$C = \{\text{multiples of 3}\}$

(a) List the members of the set

(i) $B \cup C$

.....

(1)

(ii) $A' \cap C$

.....

(1)

$\mathscr{E}$ = {23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34}
A = {even numbers}
B = {23, 29, 31}
C = {multiples of 3}

(b) Is it true that $B \cap C = \varnothing$?

Tick (✓) one of the boxes below.

Yes	No
☐	☐

Give a reason for your answer.

.....

.....

(1)

$\mathscr{E}$ = {23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34}
A = {even numbers}
B = {23, 29, 31}
C = {multiples of 3}

The set D has 4 members and is such that $D \cap (A \cup C) = \varnothing$

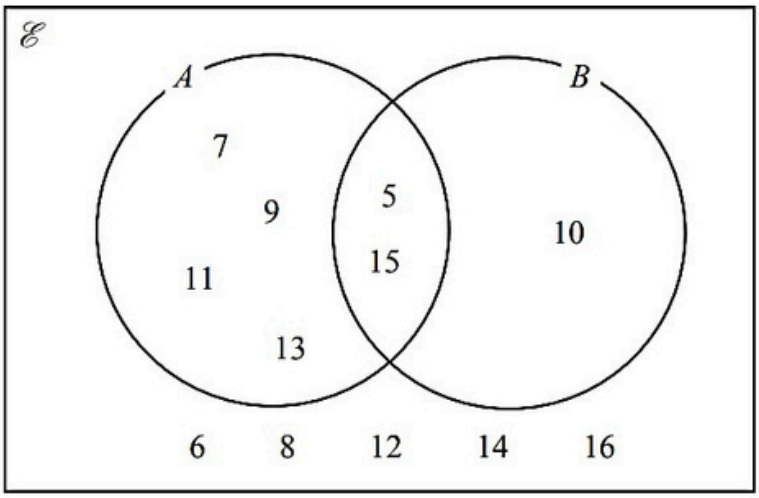
(c) List the members of set D

.....

(2)

4. Nov 2023 1H/Q1

Here is a Venn diagram.



List the members of the set

(a) A

.....

(1)

(b) $A \cap B$

.....

(1)

(c) $(A \cup B)'$

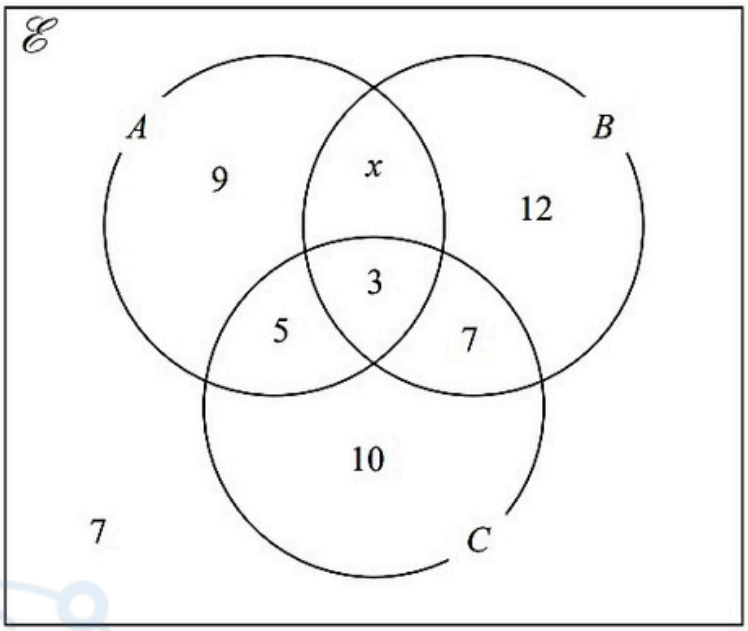
.....

(1)

5. June 2023 1H/Q16

The Venn diagram shows a universal set $\mathscr{E}$ and sets A, B and C

The numbers and the letter x represent **numbers** of elements.



Given that $n(A \cup B) = 42$

(a) find the value of x

$x =$ .....

(1)

(b) Find $n(A')$

.....

(1)

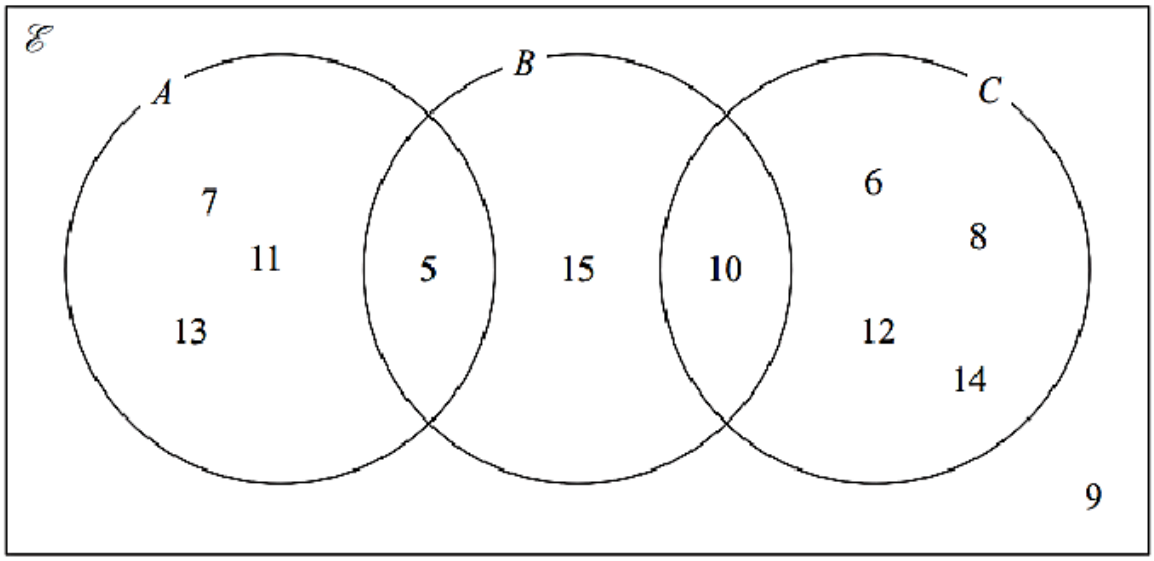
(c) Find $n(B' \cap C)$

.....

(1)

6. June 2023 1HR/Q2

Here is a Venn diagram.



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

(i) A

.....

(1)

(ii) $B \cup C$

.....

(1)

Dominic writes down $9 \notin C$

(b) Explain why Dominic is correct.

.....

.....

(1)

7. Jan 2022 1H/Q7

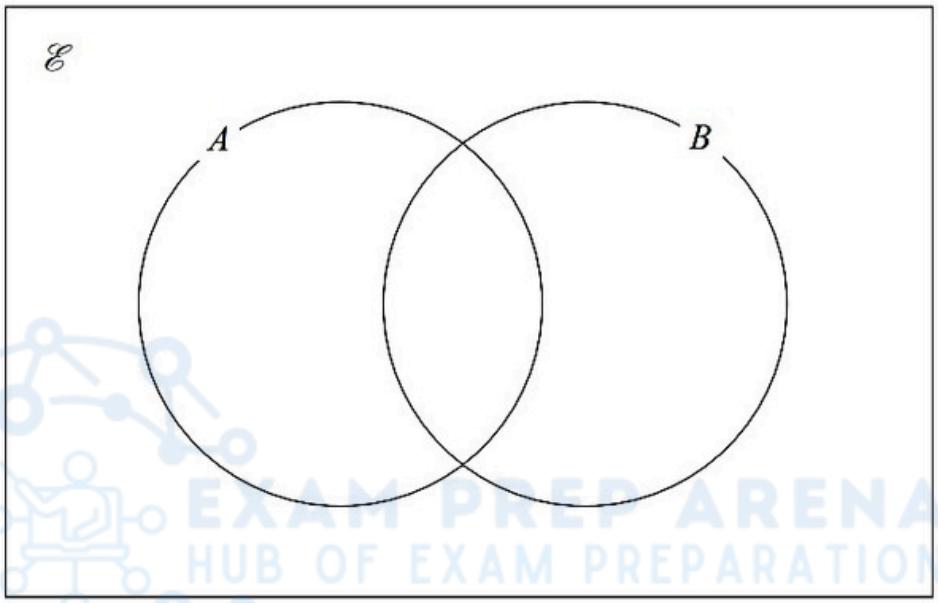
$\mathscr{E} = \{4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15\}$

$A \cap B = \{5, 10, 15\}$

$B' = \{7, 8, 9, 11, 12, 13, 14\}$

$A' = \{4, 6, 7, 8, 14\}$

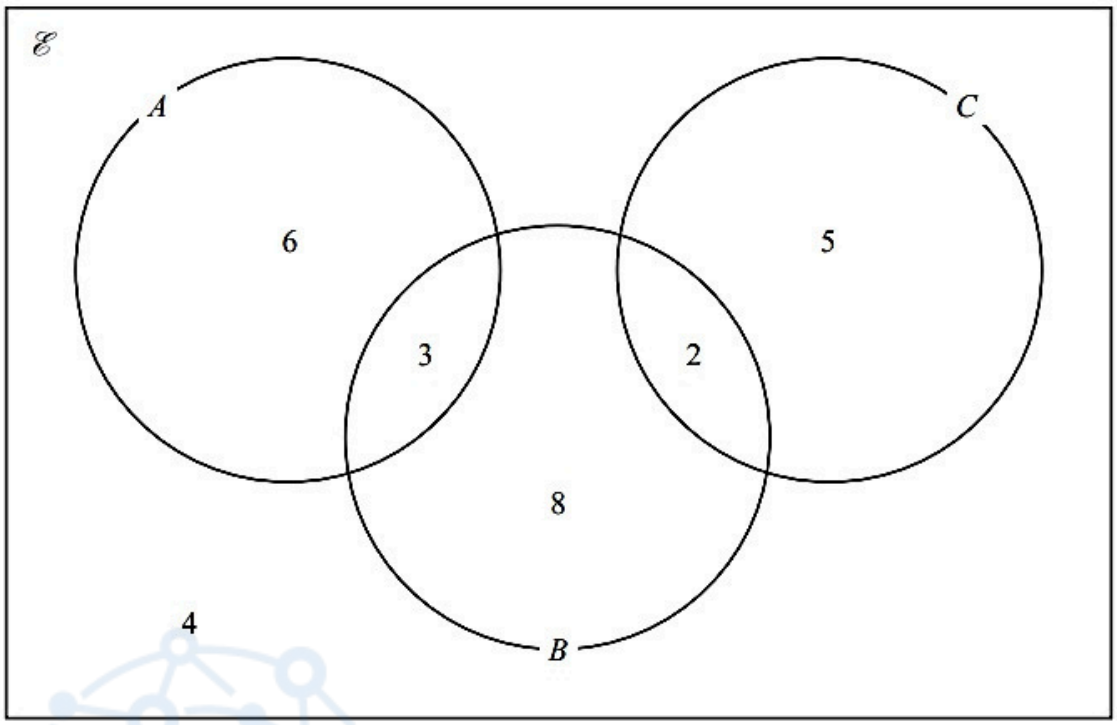
Complete the Venn diagram for this information.



(Total for Question 7 is 3 marks)

8. Jan 2022 1HR/Q17

The Venn diagram shows a universal set $\mathscr{E}$ and three sets A, B and C.



6, 3, 8, 2, 5 and 4 represent the **numbers** of elements.

Find

(i) $n(A \cup B)$

.....

(1)

(ii) $n(A \cap C)$

.....

(1)

(iii) $n(B \cap C')$

.....

(1)

(iv) $n(A' \cup B' \cup C')$

.....

(1)

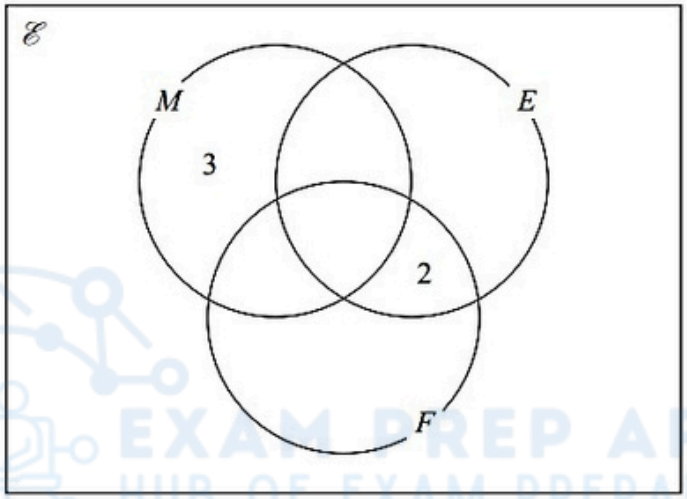
(Total for Question 17 is 4 marks)

9. Nov 2021 1H/Q16

There are 32 students in a class.
In one term these 32 students each took a test in Maths (M), in English (E) and in French (F).

25 students passed the test in Maths.
20 students passed the test in English.
14 students passed the test in French.
18 students passed the tests in Maths and English.
11 students passed the tests in Maths and French.
4 students failed all three tests.
x students passed all three tests.

The incomplete Venn diagram gives some more information about the results of the 32 students.



(a) Use all the given information about the results of students who passed the test in Maths to find the value of x.

$x =$ .....

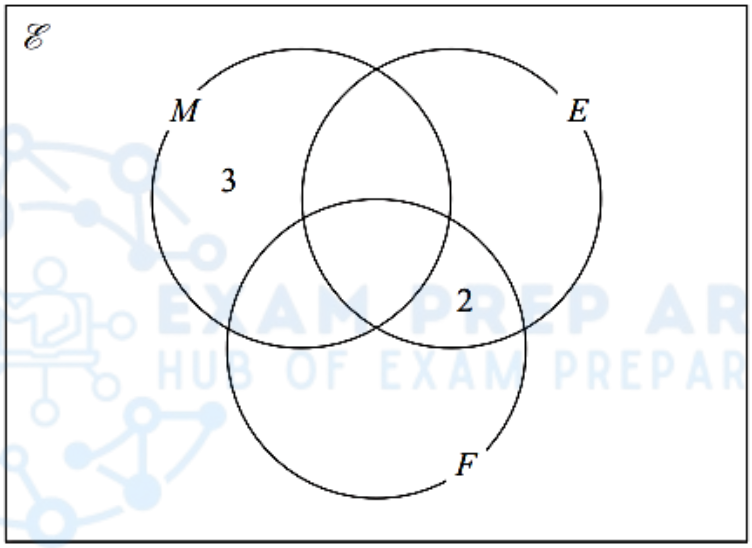
(2)

There are 32 students in a class.
In one term these 32 students each took a test in Maths (M), in English (E) and in French (F).

25 students passed the test in Maths.
20 students passed the test in English.
14 students passed the test in French.
18 students passed the tests in Maths and English.
11 students passed the tests in Maths and French.
4 students failed all three tests.
x students passed all three tests.

The incomplete Venn diagram gives some more information about the results of the 32 students.

(b) Use your value of x to complete the Venn diagram to show the number of students in each subset.



(2)

A student who passed the test in Maths is chosen at random.

(c) Find the probability that this student failed the test in French.

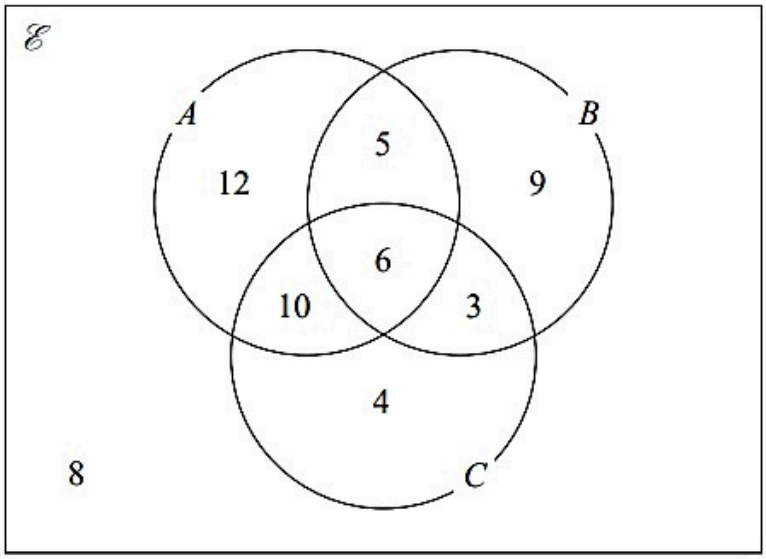
.....

(1)

(Total for Question 16 is 5 marks)

10. May 2021 1H/Q19

The Venn diagram shows a universal set, $\mathscr{E}$ and sets A, B and C.



12, 5, 9, 10, 6, 3, 4 and 8 represent the **numbers** of elements.

Find

(i) $n(A \cup B)$

.....

(1)

(ii) $n(A' \cap B')$

.....

(1)

(iii) $n([A \cap B] \cup C)$

.....

(1)

(Total for Question 19 is 3 marks)

11. Jan 2021 1H/Q4

$\mathscr{E} = \{20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}$

$A = \{\text{odd numbers}\}$
$B = \{\text{multiples of } 3\}$

List the members of the set

(i) $A \cap B$

.....

(1)

(ii) $A \cup B$

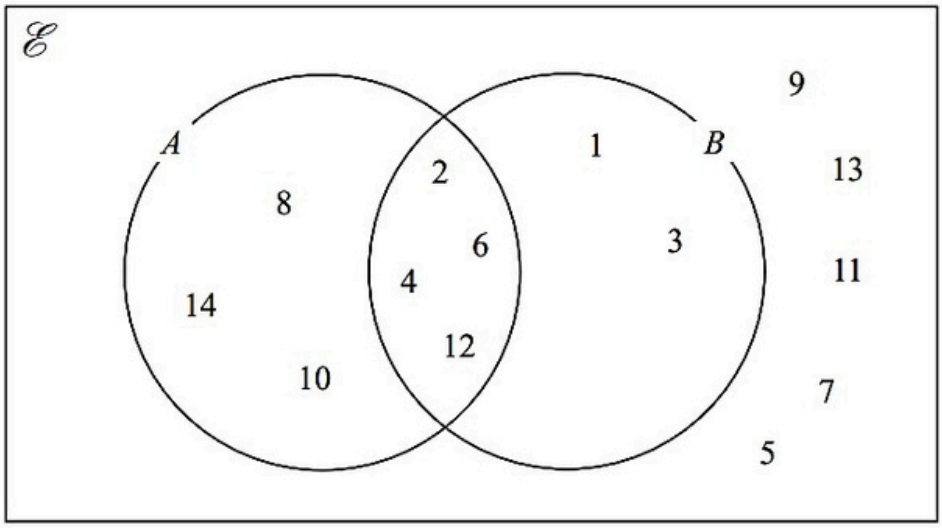
.....

(1)

(Total for Question 4 is 2 marks)

12. Nov 2020 1H/Q1

The numbers from 1 to 14 are shown in the Venn diagram.



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

.....

(1)

(b) List the members of the set B'

.....

(1)

A number is picked at random from the numbers in the Venn diagram.

(c) Find the probability that this number is in set A but is **not** in set B.

.....

(2)

(Total for Question 1 is 4 marks)

13. Jan 2020 1HR/Q4

$B = \{b, l, u, e\}$

$G = \{g, r, e, y\}$

$W = \{w, h, i, t, e\}$

(a) List all the members of the set

(i) $B \cup G$

.....

(ii) $W \cap G'$

.....

(2)

$B = \{b, l, u, e\}$

$G = \{g, r, e, y\}$

$W = \{w, h, i, t, e\}$

Serena writes down the statement $B \cap G \cap W = \varnothing$

(b) Is Serena's statement correct?
You must give a reason for your answer.

.....

.....

.....

(1)

14. June 2019 1H/Q14

$\mathscr{E}$ = {positive integers less than 20}
$A = \{x : x < 12\}$
$B = \{x : 7 \leqslant x < 16\}$

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

.....

(2)

$\mathscr{E}$ = {positive integers less than 20}
$A = \{x : x < 12\}$
$B = \{x : 7 \leqslant x < 16\}$

C is a set such that $C \subset A$ and $n(C) = 3$

Given that all members of C are even numbers,

(b) list the members of one possible set C.

.....

(1)

15.June 2019 1HR/Q3

$\mathscr{E}$ = {11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
A = {even numbers}
B = {multiples of 3}

List the members of the set

(i) $A \cap B$

.....

$\mathscr{E}$ = {11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
A = {even numbers}
B = {multiples of 3}

List the members of the set

(ii) $A \cup B$

.....

$\mathscr{E}$ = {11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
A = {even numbers}
B = {multiples of 3}

List the members of the set

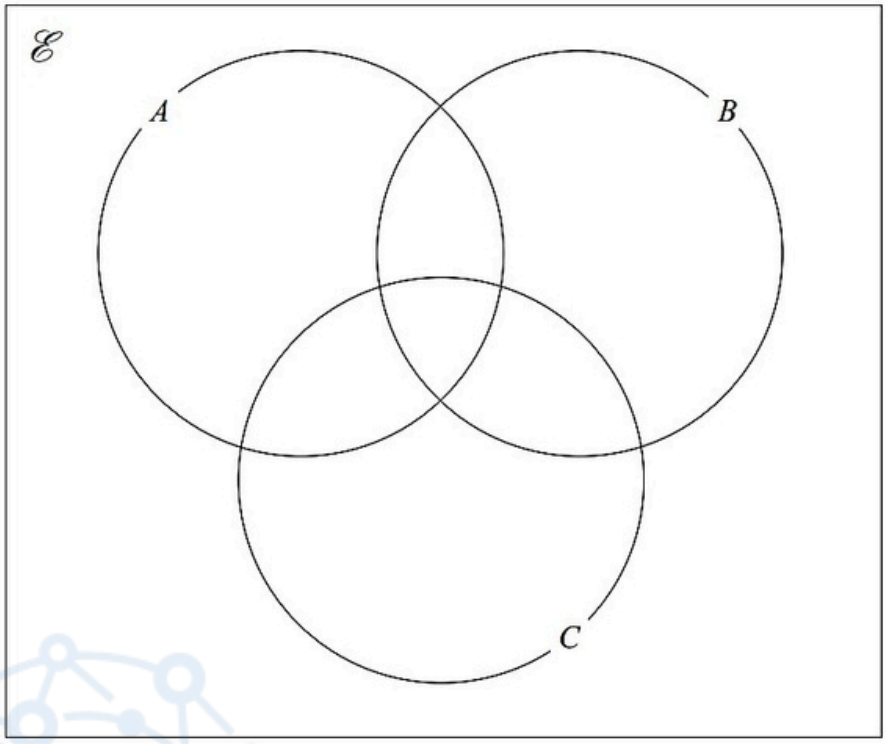
(iii) A'

.....

(Total for Question 3 is 3 marks)

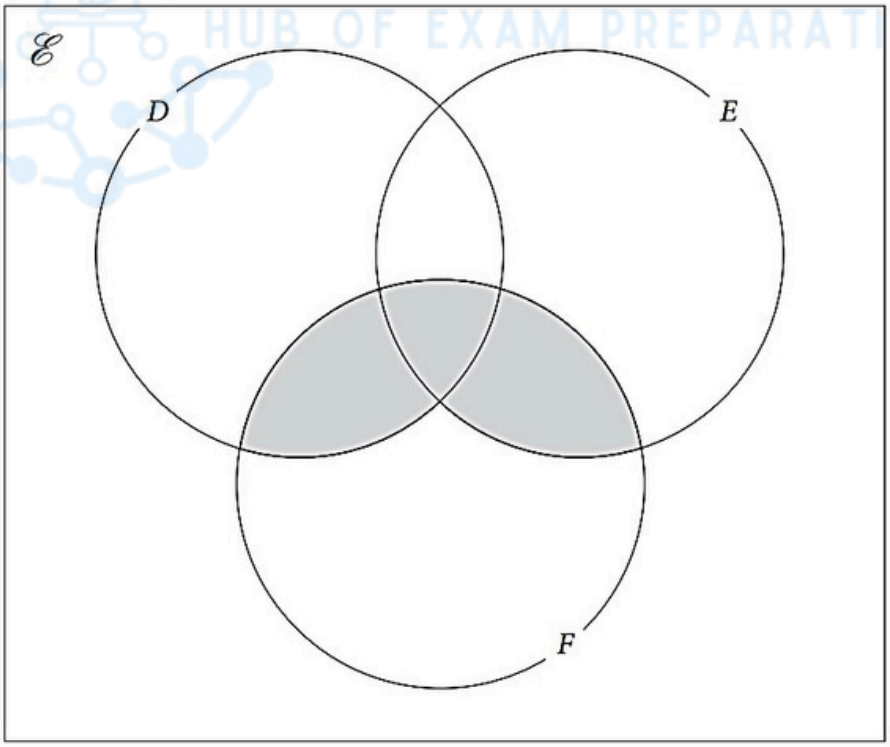
16. June 2019 1HR/Q13

(a) On the Venn diagram, shade the set $(A \cup B)' \cap C$



(1)

(b) Use set notation to describe the shaded region in the Venn diagram below.

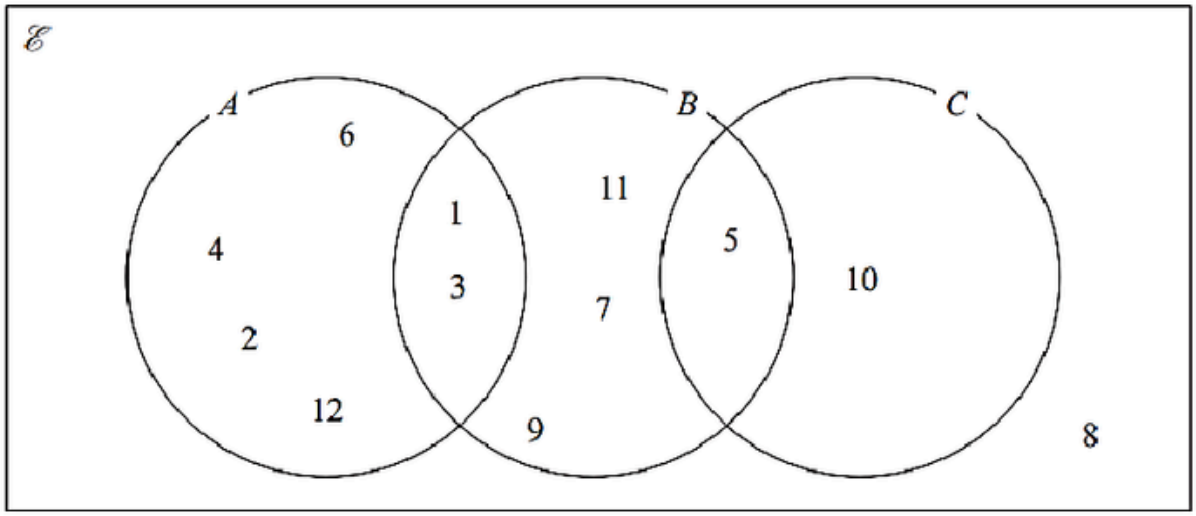


.....

(1)

17. June 2018 1H/Q4

Here is a Venn diagram.



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

(i) A

.....

(ii) $B \cup C$

.....

(2)

Brian writes down the statement $A \cap C = \emptyset$

(b) Is Brian's statement correct?
You must give a reason for your answer.

.....

.....

(1)

One of the numbers in the Venn diagram is picked at random.

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

.....

(2)

(Total for Question 4 is 5 marks)

MARKING SCHEME

1. June 2025 1HR/Q5

5	(a)(i)		2, 3, 4, 6, 8, 9, 10, 12	1	B1
	(ii)		1, 2, 4, 5, 7, 8, 10, 11	1	B1
	(b)(i)		∅	1	B1
	(ii)		∉	1	B1
					Total 4 marks

2.Nov 2024 1H/Q4

4	(a)		2 3 5 7	1	B1 All numbers must be present with no repeats and no other numbers. Numbers can be in any order Allow commas, colons, etc, between the numbers
	(b)		3 7	1	B1 Both numbers must be present with no repeats and no other numbers. Numbers can be in any order Allow commas, colons, etc, between the numbers
	(c)		2 4 5 6 8	1	B1 All numbers must be present with no repeats and no other numbers. Numbers can be in any order Allow commas, colons, etc, between the numbers

3.June 2024 1H/Q7

7	(a)(i)		23, 24 ,27, 29, 30, 31, 33	1	B1 in any order with no repeats
	(a)(ii)		27, 33	1	B1 in any order with no repeats
	(b)	eg 1. Yes, no members/numbers/values in common 2. Yes, nothing in common 3. Yes, no common members/numbers/values 4. Yes, they share no common members/numbers/values 5. Yes, there is not the same members/numbers/values in both sets 6. Yes, there is no intersection or there is nothing in B and C 7. Yes, as there are no members/numbers/values the same (in B and C) 8. Yes, no members/numbers/values in B are in C or vice versa 9. Yes, there are no members/numbers in B that are multiples of 3 10. Yes, there are no members/numbers/values in that empty set 11. Yes, 23, 29, 31 not in C 12. Yes, 24, 27, 30, 33 are not in B Allow sector for set This is not an exhaustive list Allow element(s) for members/numbers/values	Yes, there are no multiples of 3 in set *B*	1	B1 for Yes and a statement which indicates correct meanings of intersection and empty set. If no box is ticked, then the 'Yes' must be stated in the answer

(c)		23, 25, 29, 31	2	B2 for the four correct numbers and no additions (B1 for three correct values with no more than one incorrect or for four correct values with no more than one incorrect)

4.Nov 2023 1H/Q1

1	(a)		5 7 9 11 13 15	1	B1 all numbers must be present with no repeats. Numbers can be in any order
	(b)		5 15	1	B1
	(c)		6 8 12 14 16	1	B1

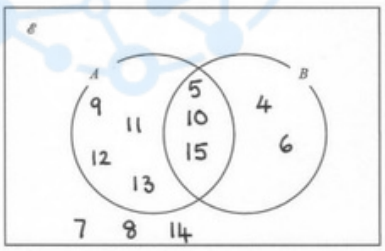
5.June 2023 1H/Q16

16	(a)		6	1	B1
	(b)		36	1	B1
	(c)		15	1	B1

6.June 2023 1HR/Q2

2	(a)(i)		5, 7, 11, 13	1	B1
	(ii)		5, 6, 8, 10, 12, 14, 15	1	B1
	(b)		Correct reason	1	B1 eg 9 is not a member of C **or** 9 is not in C **or** C only contains 6, 8, 10, 12, 14 **or** 9 is outside of C there must be no contradictory or incorrect statements

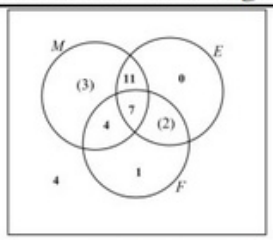
7.Jan 2022 1H/Q7

7			3	B3 all 4 parts of diagram correct (B2 for 2 or 3 parts correct) (B1 for 1 part correct) SCB1 if no marks scored, award B1 if 4,6 in the section $A \cap B'$ and 9, 11, 12, 13 in the section $A' \cap B$
				Total 3 marks

8.Jan 2022 1HR/Q17

17	(i)		19	1	B1
	(ii)		0	1	B1
	(iii)		11	1	B1
	(iv)		28	1	B1
					Total 4 marks

9.Nov 2021 1H/Q16

16	(a)	$(11-x)+(x)+(18-x)+3=25$ oe or $(11-x)+(x)+(18-x)+3+7=25+7$ oe or $x+y+z=25-3$ and $x+z=11$ and $x+y=18$ oe where $y=M\cap E\cap F'$ and $z=M\cap F\cap E'$		2	M1 for setting up a correct equation
		Correct answer scores full marks (unless from obvious incorrect working)	7		A1 (allow 7 in the Venn diagram if no answer is given in (a))
	(b)			2	B2 ft for $18-x$, x and $11-x$ dep on M1 in part (a) and ($x<12$) (NB 0, 1 and 4 are fixed) for 6 correct remaining values (B1 ft for 4 or 5 correct remaining values) Allow just E to be blank if other sections are populated with a number

10.May 2021 1H/Q19

19	(i)		45	3	B1
	(ii)		12		B1
	(iii)		28		B1
					Total 3 marks

11.Jan 2021 1H/Q4

4	(i)		21, 27	1	B1
	(ii)		21, 23, 24, 25, 27, 29	1	B1
					Total 2 marks

12. Nov 2020 1H/Q1

1	(a)		2, 4, 6, 12	1	B1
	(b)		5, 7, 8, 9, 10, 11, 13, 14	1	B1
	(c)			2	M1 for $\frac{a}{14}$ with $a<14$ **or** $\frac{3}{b}$ with $b>3$ **or** for 3 and 14 used with incorrect notation e.g. 3 : 14
			$\frac{3}{14}$		A1 for $\frac{3}{14}$ oe **or** 0.214(…)
					Total 4 marks

13.Jan 2020 1HR/Q4

4	ai		b, l, u, e, g, r, y	1	B1	No incorrect or repeats
	aii		w, h, i, t	1	B1	No incorrect or repeats
	b		No with reason	1	B1	eg 'e is in all three sets' **OR** 'all three sets share a member' **OR** $B\cap G\cap W=(\{\})e(\{\})$

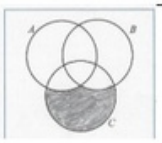
14.June 2019 1H/Q14

14	(a)		7, 8, 9, 10, 11	2	B2	completely correct. (B1 for 4 or 5 correct and no more than 1 incorrect **or** for all terms seen correctly placed in a Venn diagram or for a correct description of the numbers in the set but not listed, eg $7\le x<12$)
	(b)		eg 2, 4, 6	1	B1	for any 3 of 2, 4, 6, 8, 10

15.June 2019 1HR/Q3

3	(i)		12, 18	1	B1
	(ii)		12, 14, 15, 16, 18, 20	1	B1
	(iii)		11, 13, 15, 17, 19	1	B1

16.June 2019 1HR/Q13

13	(a)			1	B1	Professional judgment required, eg allow double shading if meaning clear.
	(b)		$(D \cup E) \cap F$	1	B1	oe eg $(D \cap F) \cup (E \cap F)$

17.June 2018 1H/Q4

4	a (i)		1, 2, 3, 4, 6, 12	1	B1	cao
	(ii)		1, 3, 5, 7, 9, 10, 11	1	B1	cao
	b		Yes with reason	1	B1	e.g. no numbers in both A and C **or** A and C do not intersect **or** A and C do not overlap **or** A and C are mutually exclusive