

Sets & Venn Diagrams

Difficulty: Hard

Question Paper 1

Level	IGCSE
Subject	Maths (0580/0980)
Exam Board	CIE
Topic	Number
Sub-Topic	Sets & Venn Diagrams
Paper	Paper 2
Difficulty	Medium
Booklet	Question Paper 1

Time allowed: 32 minutes

Score: /25

Percentage: /100

Grade Boundaries:

CIE IGCSE Maths (0580)

A*	A	B	C	D	E
>88%	76%	63%	51%	40%	30%

CIE IGCSE Maths (0980)

9	8	7	6	5	4	3
>94%	85%	77%	67%	57%	47%	35%

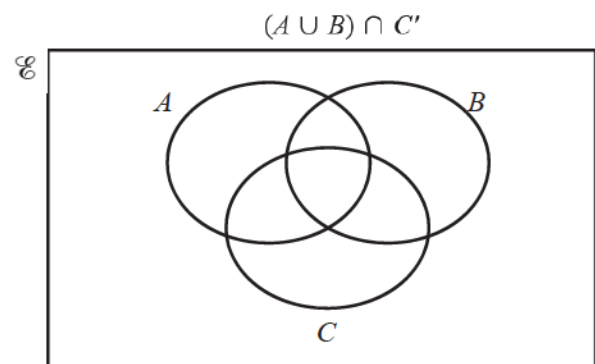
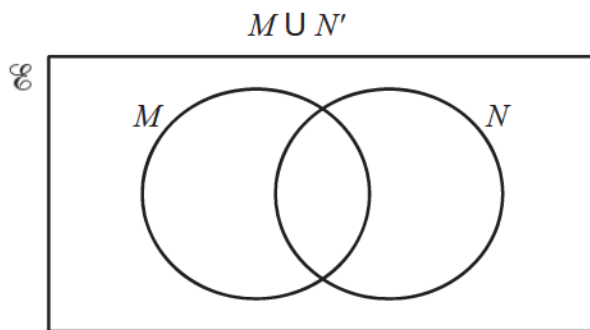
Question 1

(a) $Q = \{1, 2, 3, 4, 5, 6\}$

Write down a set P where $P \subset Q$.

[1]

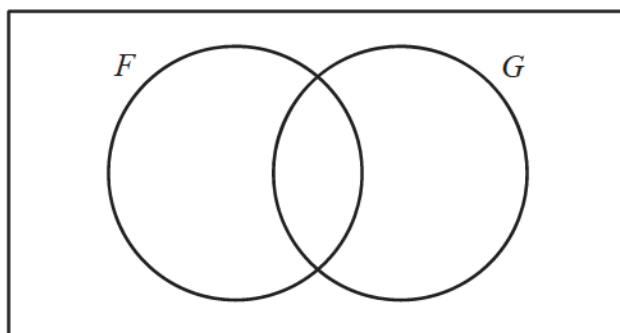
(b) Shade these regions in the Venn diagrams.



[2]

Question 2

- (a) In this Venn diagram, shade the region $F \cup G'$.

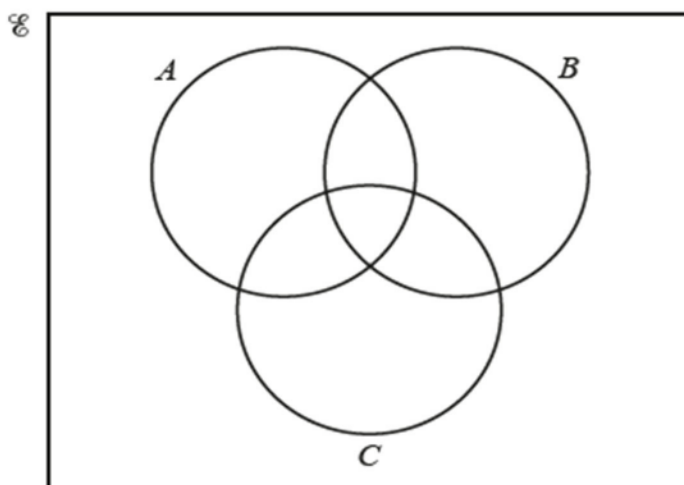


[1]

- (b) $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$
 $A = \{x: x \text{ is an odd number}\}$
 $B = \{x: x \text{ is a square number}\}$
 $C = \{x: x \text{ is a multiple of } 3\}$

- (i) Write all the elements of \mathcal{E} in the Venn diagram below.

[2]



- (ii) Another number is included in the set \mathcal{E} .
This number is in the region $A' \cap B \cap C$.

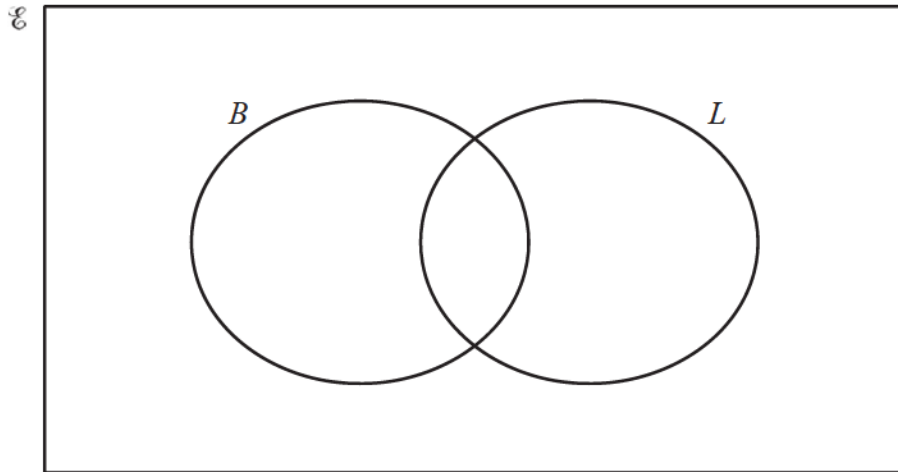
[1]

Write down a possible value for this number.

Question 3

(a) A total of 20 trucks were tested at a checkpoint.

- 6 trucks failed the test for brakes (B)
- 7 trucks failed the test for lights (L)
- 9 trucks passed the tests for both brakes and lights.



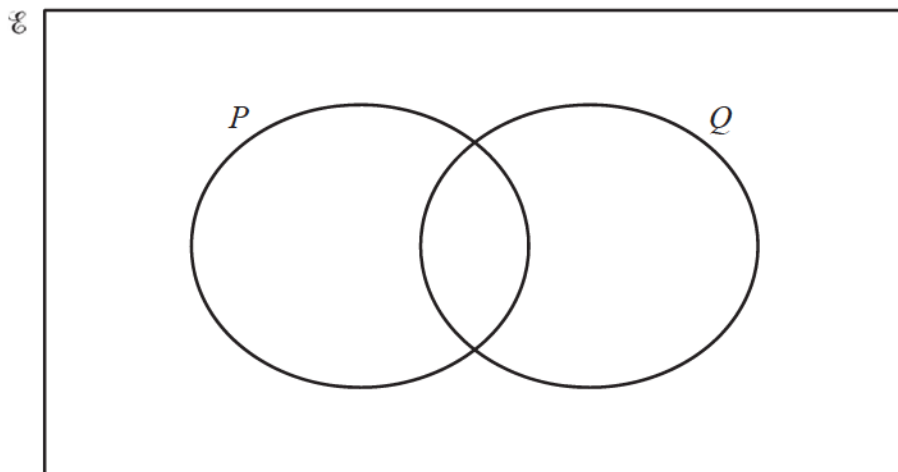
(i) Complete the Venn diagram.

[2]

(ii) Find $n(B' \cap L')$.

[1]

(b) In the Venn diagram below, shade the region $(P \cup Q) \cap Q'$.



[1]

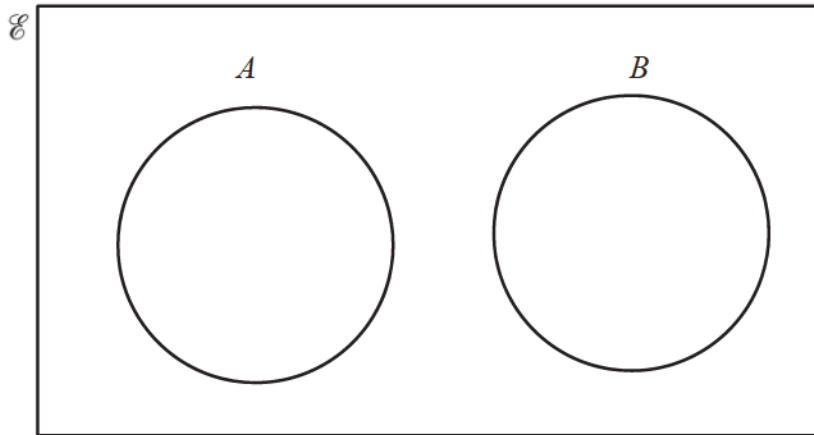
Question 4

(a) $\mathcal{E} = \left\{ 7, 9.3, \pi, \frac{5}{9}, 2\sqrt{8} \right\}$

$A = \{\text{integers}\}$

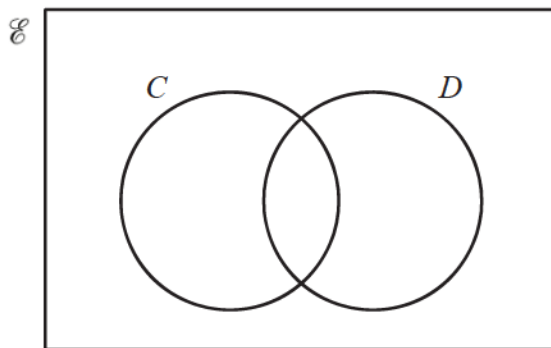
$B = \{\text{irrational numbers}\}$

Write all the elements of \mathcal{E} in their correct place on the Venn diagram.

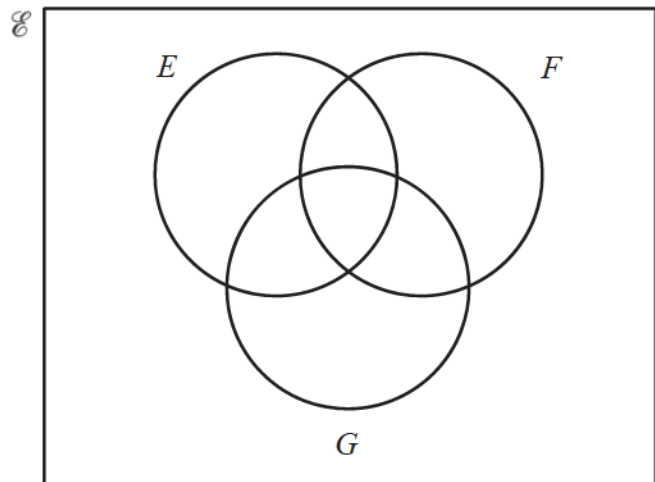


[2]

(b) Shade the region in each of the Venn diagrams below.



$C' \cup D$



$E \cap F' \cap G$

[2]

Question 5

(a) $\mathcal{E} = \{x: 2 \leq x \leq 16, x \text{ is an integer}\}$

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

$P = \{\text{prime numbers}\}$

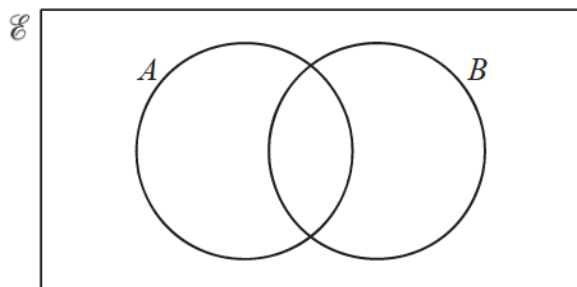
(i) Find $n(M)$.

[1]

(ii) Write down the set $(P \cup M)'$.

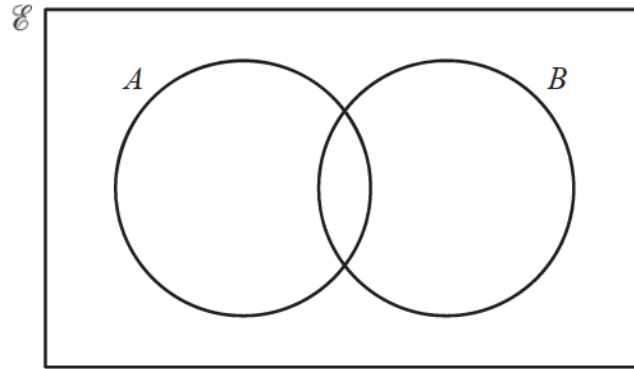
[1]

(b) On the Venn diagram, shade $A \cap B'$.



[1]

Question 6

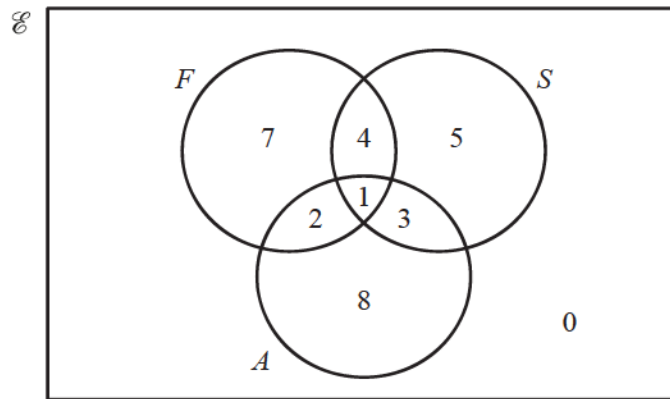


In the Venn diagram shade the region $A \cup B$.

[1]

Question 7

The Venn diagram shows the number of students who study French (F), Spanish (S) and Arabic (A).



(a) Find $n(A \cup (F \cap S))$.

[1]

(b) On the Venn diagram, shade the region $F' \cap S$.

[1]

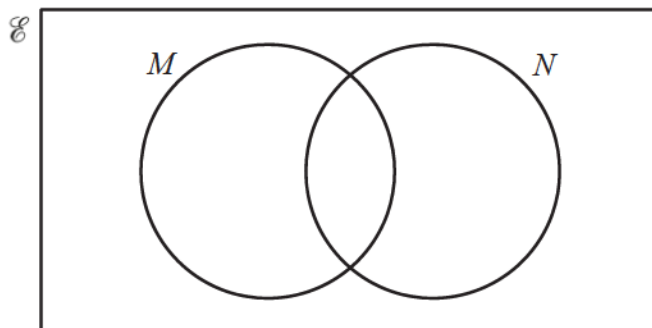
Question 8

(a) You may use this Venn diagram to help you answer part (a).

$$\mathcal{E} = \{x: 1 \leq x \leq 12, x \text{ is an integer}\}$$

$$M = \{\text{odd numbers}\}$$

$$N = \{\text{multiples of 3}\}$$



(i) Find $n(N)$.

[1]

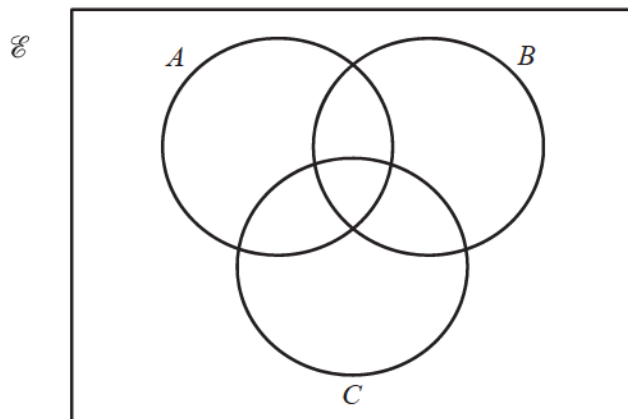
(ii) Write down the set $M \cap N$.

[1]

(iii) Write down a set P where $P \subset M$.

[1]

(b) Shade $(A \cup C) \cap B'$ in the Venn diagram below.



[1]