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

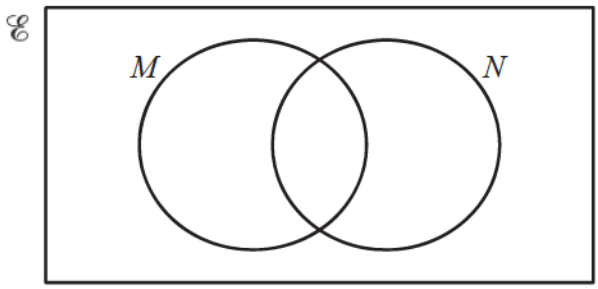
(a) $Q = \{1, 2, 3, 4, 5, 6\}$

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

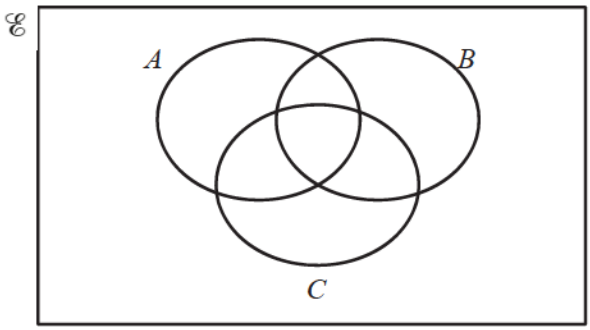
[1]

(b) Shade these regions in the Venn diagrams.

$M \cup N'$

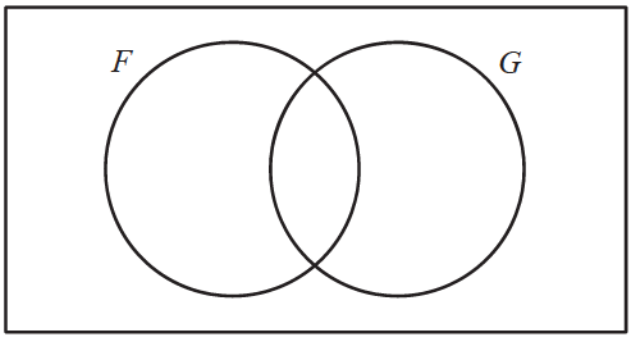


$(A \cup B) \cap C'$



[2]

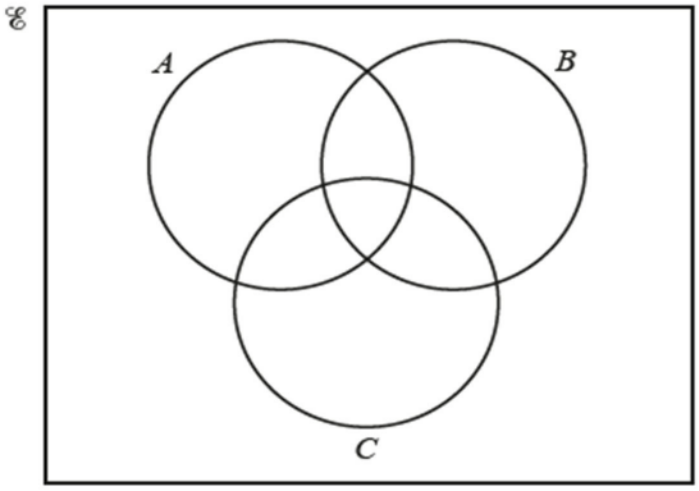
(a) In this Venn diagram, shade the region $F \cup G'$.



[1]

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

(i) Write all the elements of $\mathscr{E}$ in the Venn diagram below. [2]



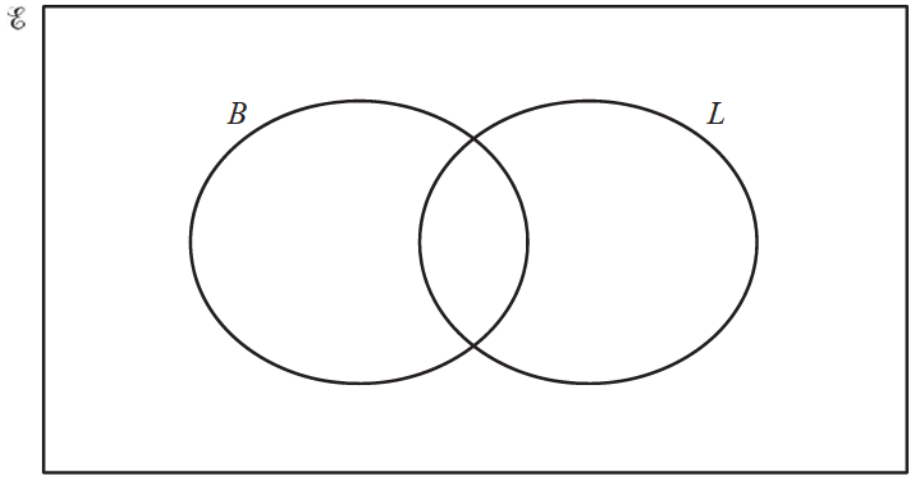
(ii) Another number is included in the set $\mathscr{E}$.
This number is in the region $A' \cap B \cap C$. [1]

Write down a possible value for this number.

Question 3

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

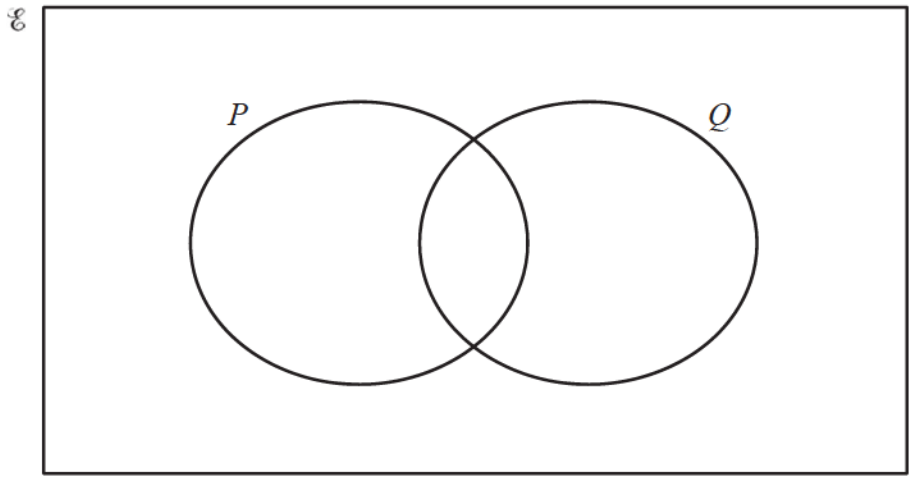
- 6 trucks failed the test for brakes (B)
- 7 trucks failed the test for lights (L)
- 9 trucks passed the tests for both brakes and lights.



(i) Complete the Venn diagram. [2]

(ii) Find $n(B' \cap L')$. [1]

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



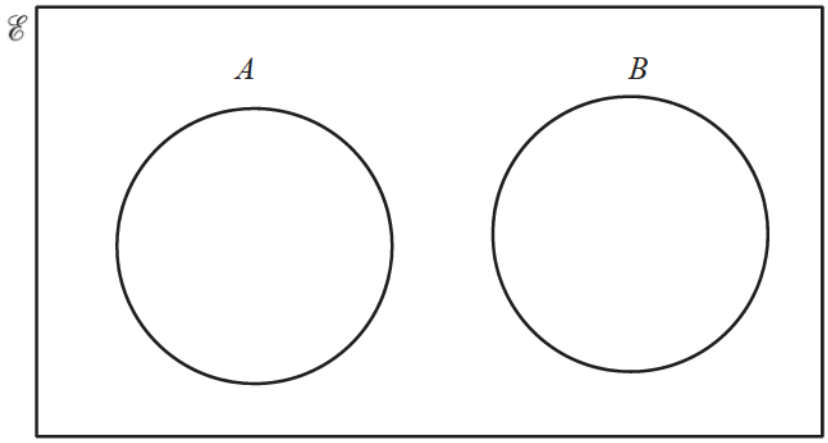
[1]

Question 4

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

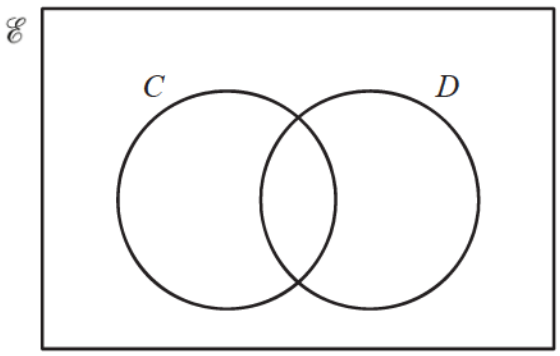
A = {integers}
B = {irrational numbers}

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

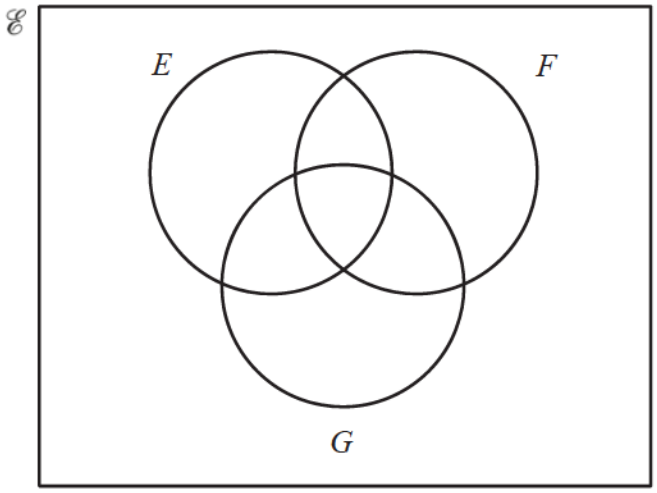


[2]

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



$C' \cup D$



$E \cap F' \cap G$

[2]

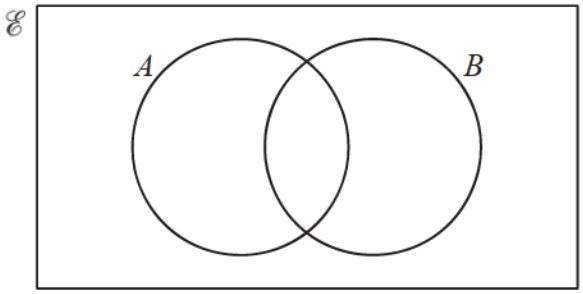
Question 5

(a) $\mathscr{E} = \{x: 2 \leqslant x \leqslant 16, x \text{ is an integer}\}$
$M = \{\text{even numbers}\}$
$P = \{\text{prime numbers}\}$

(i) Find n(M). [1]

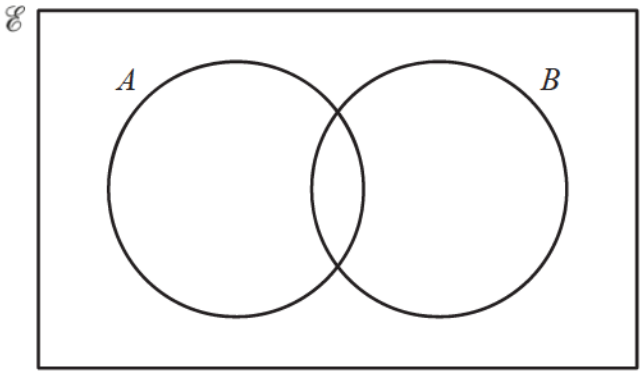
(ii) Write down the set $(P \cup M)'$. [1]

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



[1]

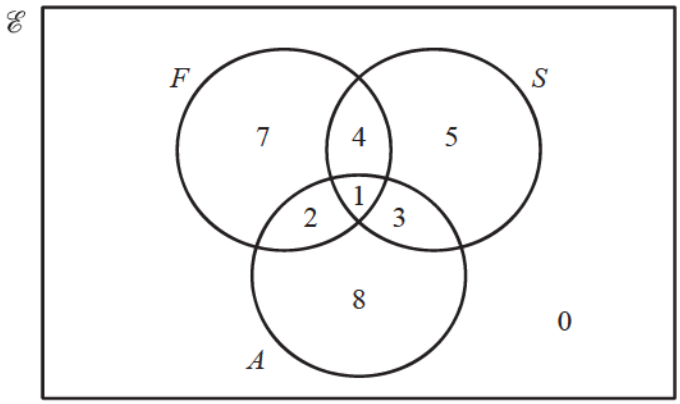
Question 6



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).



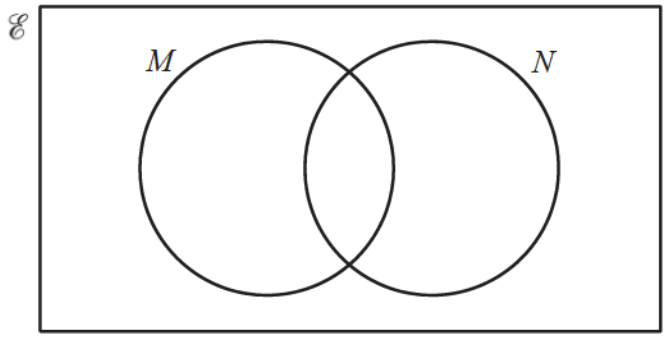
(a) Find n $(A \cup (F \cap S))$.

[1]

(b) On the Venn diagram, shade the region $F' \cap S$. [1]

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

$\mathscr{E} = \{x : 1 \leqslant x \leqslant 12, x \text{ is an integer}\}$
$M = \{\text{odd numbers}\}$
$N = \{\text{multiples of 3}\}$



(i) Find n(N).

[1]

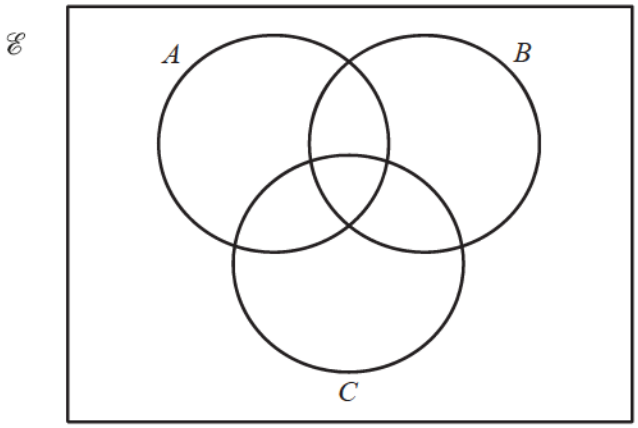
(ii) Write down the set $M \cap N$.

[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]