Sets and Venn Diagram Past Paper Questions Edexcel Maths IGCSE Higher- Calculator

1.

(a) $\mathscr{E}$ = {Students in Year 12}
   G = {Students who study German}
   F = {Students who study French}
   M = {Students who study Maths}

   (i) $G \cap M = \emptyset$

   Use this information to write a statement about the students who study German in Year 12

   ....

   (ii) Preety is a student in Year 12
   Preety $\notin F$.

   Use this information to write a statement about Preety.

   ....

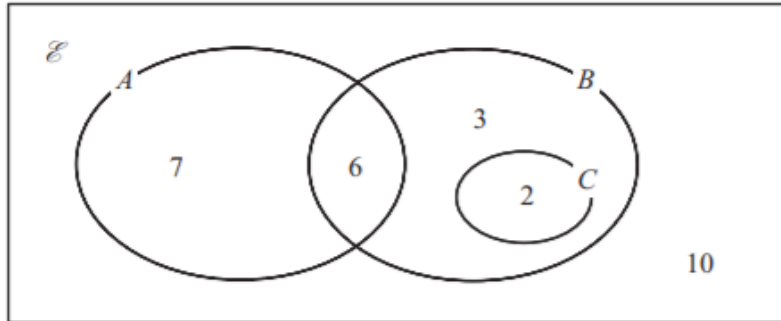   (2)

(b) A = {2, 4, 6, 8, 10}
   $A \cap B$ = {2, 4}
   $A \cup B$ = {1, 2, 3, 4, 6, 8, 10}

   List all the members of set B.

                                                                                ....

                                                                                                                                (2)

2.

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

7, 6, 3, 2 and 10 represent the **numbers** of elements.

Find

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

....

(ii) $n(A')$

....

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

....

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

....

3.

$\mathscr{E}$ = {even numbers}
A = {factors of 8}
B = {factors of 20}

List the members of $A \cap B$

....

4.
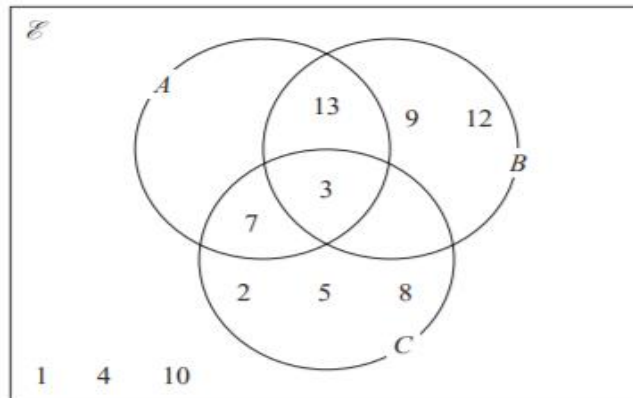
$\mathscr{E}$ = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13}
A = {3, 7, 11, 13}
B = {3, 6, 9, 12, 13}
C = {2, 3, 5, 6, 7, 8}

(a) Complete the Venn diagram.

(1)

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

....

(1)

(c) List the members of the set $(A \cup C)' \cap B$

....

(1)

(d) Find n$(A' \cap B')$

....

(1)

5.

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

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

....

(1)

C is a set such that $A \cap C = \{4, 5\}$
The set C has 4 members.

(b) List the members of one possible set C

....

(2)

6.

| The Venn diagram shows a universal set $\mathscr{E}$ and sets A, B and C, where 6, 3, 7, 5, 2, 9, 4 and 8 represent **numbers** of elements.
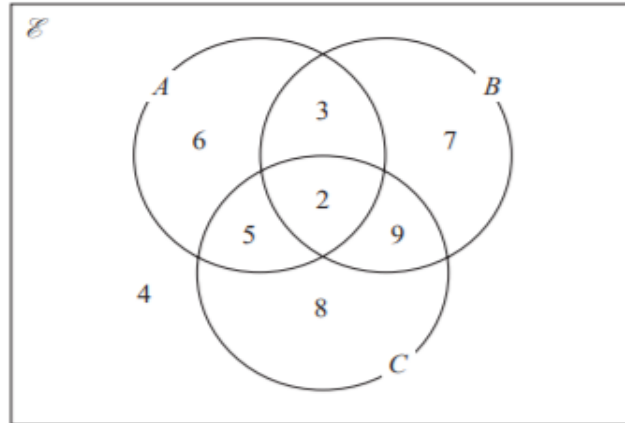
(a) Find $n(A \cup B)'$

....

(1)

(b) Find $n((A \cup C)' \cap B)$

....

(1)

(c) On the Venn diagram, shade the region that represents the set $(A \cup B) \cap C$

(1)

7.

$\mathscr{E} = \{2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\}$

$A = \{2, 4, 6, 8, 10, 12\}$
$B = \{3, 6, 9, 12\}$

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

....

(1)

C is a set with 4 members.

$A \cap C = \varnothing$ and $B \cap C = \varnothing$

(b) List the members of set C

....

(2)

8.

All the students in Year 11 at a school must study at least one of Geography (G), History (H) and Religious Studies (R).

In Year 11 there are 65 students.

Of these students

> 15 study Geography, History and Religious Studies
> 21 study Geography and History
> 16 study Geography and Religious Studies
> 30 study Geography
> 18 study only Religious Studies
> 37 study Religious Studies

(a) Using this information, complete the Venn diagram to show the number of students in each region of the Venn diagram.
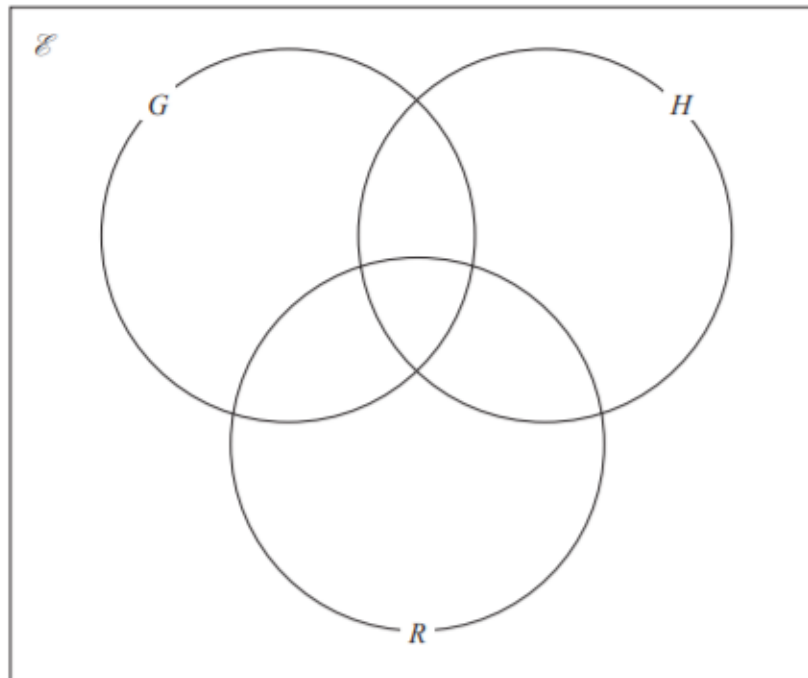
(3)

A student in Year 11 who studies both History and Religious Studies is chosen at random.

(b) Work out the probability that this student does **not** study Geography.

(2)