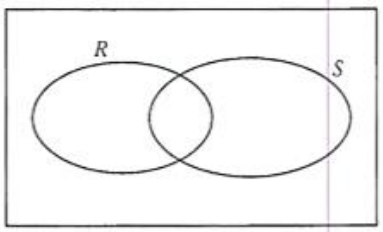
Topic 8 Set Language and Notation

1. $\mathscr{E}$ = {all triangles}
R = {right-angled triangles}
S = {triangles with three unequal sides}



A is a triangle with angles 45°, 45° and 90°.
B is a triangle with sides 7 cm, 7 cm and 3 cm.
C is a triangle with sides 3 cm, 4 cm and 5 cm.

On the Venn Diagram on the right, write A, B and C in the appropriate subsets. [3]
(N2011/P1/Q13)

2. $\mathscr{E}$ = {integers $x : 1 \leqslant x \leqslant 15$}
A = {factors of 24}
B = {multiple of 3}

(a) Draw a Venn diagram to illustrate this information. [2]
(b) Write down n($A \cap B$). [1]
(c) List the elements contained in the set $A' \cup B$. [1]
(N2012/P2/Q6a)

3. $\mathscr{E}$ = {integers x: $2 \leqslant x \leqslant 12$}
A = {prime numbers}
B = {multiples of 4}
List the elements in
(a) B', [1]
(b) $A \cap B'$, [1]
(c) $(A \cup B)'$. [1]
(N2013/P1/Q14)

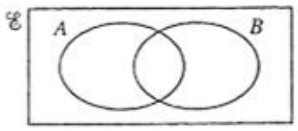
4. $\mathscr{E}$ = {integers $x : 4 \leqslant x \leqslant 11$}
A = {factors of 10}
B = {prime numbers}

(a) Draw a Venn diagram to illustrate this information. [2]
(b) List the elements contained in the set $(A \cap B)'$. [1]
(N2014/P1/Q15)

5. $\mathscr{E} = \{\text{integers } x : 1 \leqslant x \leqslant 8\}$
$A = \{\text{factors of } 6\}$
$B = \{\text{prime numbers}\}$

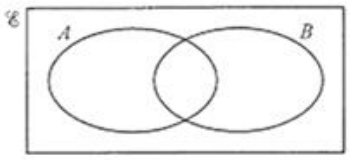
(a) List the elements in $A' \cap B'$. [1]

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



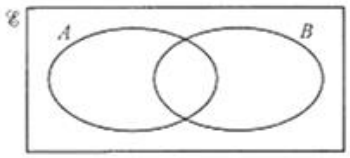
[1]
(N2015/P1/Q6)

6. (a) On the Venn diagram, shade the region which represents $A \cup B'$.



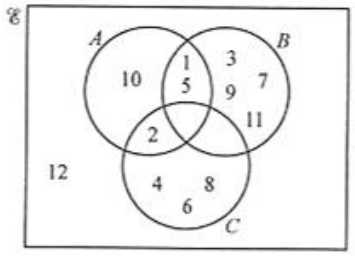
[1]

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



[1]
(N2016/P1/Q3)

7. $\mathscr{E} = \{\text{integers } x : 1 \leqslant x \leqslant 12\}$
The Venn diagram shows the elements of $\mathscr{E}$ and three sets A, B and C.

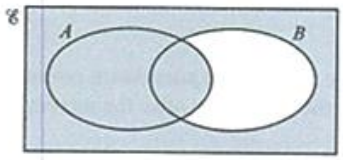


Use one of the symbols below to complement each statement.

$$\varnothing \subset \not\subset \notin \in \ni$$

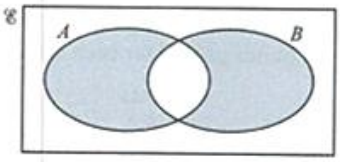
(a) $\{2, 10\}$ ..... A [1]
(b) 3 ..... B [1]
(c) $B \cap C =$ ..... [1]
(N2017/P1/Q6)

8. Write down the sets represented by the following shaded regions.
(a)



[1]

(b)



[1]
(N2018/P1/Q7)

9. $\mathscr{E} = \{\text{integers } x: 4 < x < 16\}$
$P = \{\text{prime numbers}\}$
$Q = \{\text{multiples of } 4\}$
$R = \{\text{factors of } 30\}$
(a) List the elements in
(i) R, [1]
(ii) $P \cap R$. [1]
(b) Underline the correct statements from the list below.
$R \cap Q = \varnothing$ $Q \cup R = \{5, 6, 8, 10, 12\}$ $P \cap Q = \{0\}$ $Q \subset R$ $16 \notin P$ [2]
(N2019/P1/Q18)