Set language and notation – 2021 O Level Math D

1. Nov/2021/Paper_11/No.11

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

$X = \{2, 3, 5, 7, 11\}$

$Y = \{1, 2, 3, 4, 5, 6\}$

(i) Find $X \cap Y$.

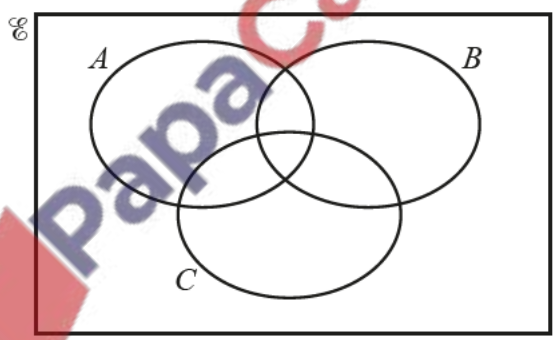
{ ..... } [1]

(ii) A number, k, is chosen at random from $\mathscr{E}$.

Find the probability that $k \notin (X \cup Y)$.

..... [1]

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



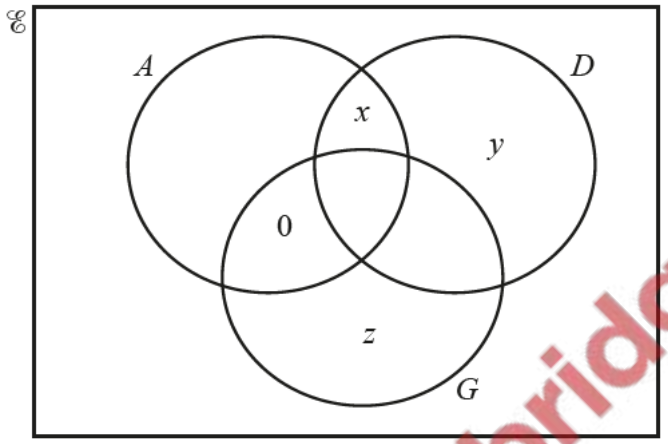
[1]

2. Nov/2021/Paper_12/No.7

40 students can take part in three activities, Art (A), Dancing (D) and Gardening (G).

- 5 do not take part in any of the activities
- 12 do Art only
- 4 do Dancing and Gardening but not Art
- 1 student does all three activities

(a) Complete the Venn diagram.



[2]

(b) On the Venn diagram, the ratio $x : y : z = 1 : 2 : 3$.

Find the value of each of x, y and z.

$x =$ .....

$y =$ .....

$z =$ ..... [3]

(c) One subset in the Venn diagram in **part (a)** has no students.

Use set notation to describe this subset.

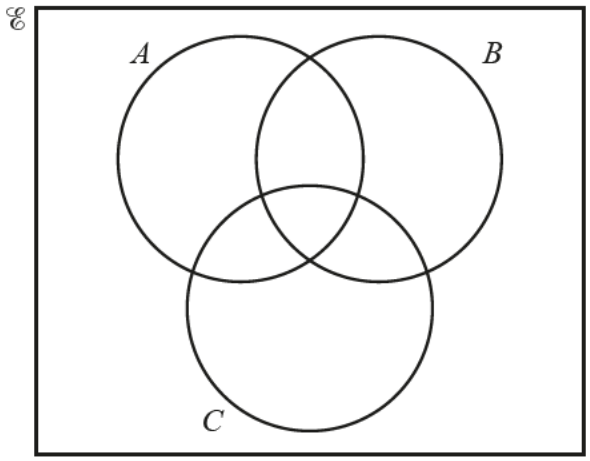
..... [1]

(d) Find $\mathrm{n}((D \cup G) \cap A)$.

..... [1]

3. June/2021/Paper_21/No.5

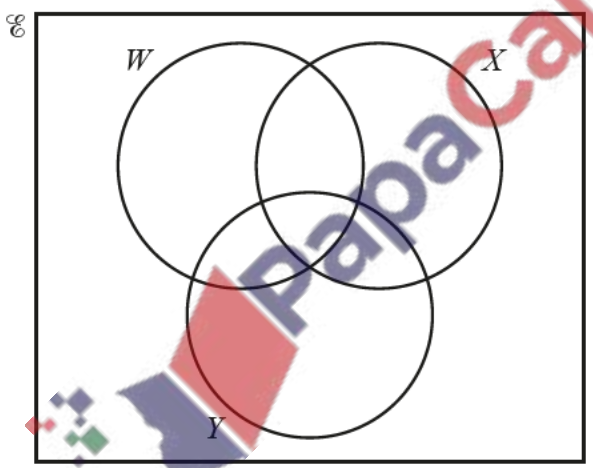
(a) Shade the subset $A' \cap B \cap C$.



[1]

(b) $\mathscr{E} = \{ \text{A, C, E, G, H, J, N, R, T, Z} \}$
$W = \{ x : x \text{ has rotational symmetry of order 2} \}$
$X = \{ x : x \text{ has line symmetry} \}$
$Y = \{ \text{R, A, N, G, E} \}$

(i) Complete the Venn diagram.



[3]

(ii) List the elements of $X \cap (W \cup Y)'$.

..... [1]

(iii) Find $n(W \cup X \cup Y)'$.

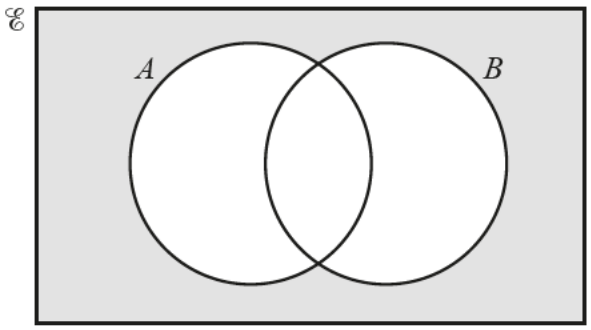
..... [1]

(iv) Using set notation, complete this statement.

..... $= \varnothing$ [1]

4. June/2021/Paper_22/No.5

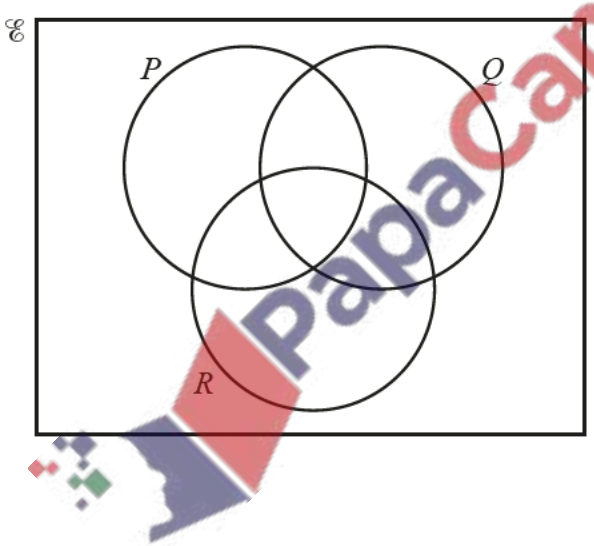
(a) Use set notation to describe the subset shaded in the Venn diagram.



..... [1]

(b) $\mathscr{E} = \{ 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 \}$
$P = \{ x : x \text{ is a factor of } 36 \}$
$Q = \{ x : x \text{ is a multiple of } 4 \}$
$R = \{ x : 3 \leqslant x \leqslant 6 \}$

(i) Complete the Venn diagram.



[3]

(ii) List the elements of $P \cap (Q \cup R)'$.

..... [1]

(iii) Find $n(P \cup Q)$.

..... [1]

(iv) Use set notation to complete the statement.

..... $= \varnothing$ [1]