

1.**[2 marks]**

$S = \{c, h, i, n, a\}$

$V = \{i, t, a, l, y\}$

List the elements of the set

(i) $S \cap V$

.....

(ii) $S \cup V$

.....

2.**[4 marks]**

$A = \{\text{Prime numbers between 10 and 16}\}$

$B = \{\text{Multiples of 3 between 10 and 16}\}$

(a) List the members of $A \cup B$
(2)(b) What is $A \cap B$?.....
(1)(c) Is it true that $11 \in B$?

.....

Explain your answer.

.....
.....
(1)

3.

[3 marks]

$$A = \{2, 4, 6, 8, 10, 12, 14\}$$

$$B = \{1, 3, 5, 7, 9, 11, 13\}$$

$$C = \{3, 6, 9, 12\}$$

(a) List the members of the set

(i) $A \cap C$

.....

(ii) $A \cup C$

.....

(2)

(b) Explain why $A \cap B = \emptyset$

.....

(1)

4.

[3 marks]

(a) $S = \{1, 3, 5, 7\}$

$$T = \{2, 3, 7, 11\}$$

How many members are there in $S \cup T$?

.....

(1)

(b) $U = \{3, 4, 5\}$

$$U \cup V = \{1, 2, 3, 4, 5\}$$

The set V has as few members as possible.

List the members of the set V .

.....

(1)

(c) $A = \{\text{Cats}\}$

$$B = \{\text{Black animals}\}$$

Describe the members of $A \cap B$.

.....

(1)

5.

[3 marks]

(a) $A = \{s, u, p, e, r\}$
 $B = \{c, o, m, p, u, t, e, r\}$

List the members of the set

(i) $A \cap B$

.....

(ii) $A \cup B$

.....

(2)

(b) $X = \{\text{prime numbers}\}$
 $Y = \{\text{factors of 12}\}$

Is it true that $X \cap Y = \emptyset$?

Tick (✓) the appropriate box.

Yes

No

Explain your answer.

.....

(1)

6.

[4 marks]

$\mathcal{E} = \{\text{even numbers less than 19}\}$
 $M = \{\text{multiples of 3}\}$
 $F = \{\text{factors of 12}\}$

(a) (i) Explain why it is **not** true that $9 \in M$.

.....

(ii) List the members of M .

.....

(2)

(b) List the members of $M \cap F$.

.....

(2)

$$\begin{aligned}\mathcal{E} &= \{\text{odd numbers}\} \\ A &= \{1, 5, 9, 13, 17\} \\ B &= \{1, 9, 17, 25, 33\} \\ C &= \{7, 11, 15\}\end{aligned}$$

(a) List the members of the set

(i) $A \cap B$,

.....

(ii) $A \cup B$.

.....

(2)

(b) Explain why $A \cap C = \emptyset$

.....

.....

(1)

$$\begin{aligned}\mathcal{E} &= \{\text{even numbers}\} \\ A &= \{2, 4, 6, 8, 10\}\end{aligned}$$

(a) B is a set such that $A \cap B = \{4, 8\}$

The set B has 3 members.

List the members of one possible set B .

.....

(2)

(b) C is a set such that $A \cap C = \emptyset$

The set C has 3 members.

List the members of one possible set C .

.....

(1)

9.

[2 marks]

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

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

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

List the members of the set

(i) $A \cap P,$

.....

(ii) $A \cup P.$

.....

10.

[3 marks]

$$\mathcal{E} = \{\text{positive whole numbers less than 19}\}$$

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

$$B = \{\text{multiples of 5}\}$$

$$C = \{\text{multiples of 4}\}$$

(a) List the members of the set

(i) $A \cap B$

.....

(ii) $B \cup C$

.....

(2)

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

(b) Is it true that $B \cap D = \emptyset$?

Tick (✓) the appropriate box.

Yes

No

Explain your answer.

.....
(1)

11.

[2 marks]

$$\mathcal{E} = \{\text{even numbers}\}$$

$$A = \{\text{factors of 8}\}$$

$$B = \{\text{factors of 20}\}$$

List the members of $A \cap B$

.....

12.

[4 marks]

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

(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)

(a) $A = \{2, 3, 4, 5\}$

$B = \{4, 5, 6, 7\}$

(i) List the members of $A \cap B$.

.....

(ii) How many members are in $A \cup B$?

.....

(2)

(b) $\mathcal{E} = \{3, 4, 5, 6, 7\}$

$P = \{3, 4, 5\}$

Two other sets, Q and R , each contain exactly three members.

$P \cap Q = \{3, 4\}$

$P \cap R = \{3, 4\}$

Set Q is not the same as set R .(i) Write down the members of a possible set Q .

.....

(ii) Write down the members of a possible set R .

.....

(2)

(a) $A = \{1, 2, 3, 4\}$

$B = \{2, 4, 6, 8\}$

Write down the members of $A \cup B$.

.....

(2)

(b) $\mathcal{E} = \{\text{Positive integers less than } 10\}$

$P = \{3, 4, 5, 6, 7, 8\}$

$P \cap Q = \emptyset$

Write down all the possible members of Q .

.....

(2)

$$\mathcal{E} = \{\text{Clothes}\}$$

$$A = \{\text{Mr Smith's clothes}\}$$

$$B = \{\text{Hats}\}$$

$$C = \{\text{Mrs Koshi's hats}\}$$

- (a) (i) Describe the members of the set $A \cap B$

.....

- (ii) How many members has the set $A \cap C$?

.....
(2)

- (b)

A	B	C	\mathcal{E}	ϵ	\emptyset	\cap	\cup
-----	-----	-----	---------------	------------	-------------	--------	--------

Use a letter or symbol from the box to make each of the following a true statement.

(i) $B \cup C = \dots\dots\dots$

(ii) Mr Smith's favourite shirt A

(2)

$$\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8\}$$

$$P = \{2, 3, 5, 7\}$$

- (a) List the members of P'

.....
(1)

The set Q satisfies both the conditions $Q \subset P$ and $n(Q) = 3$

- (b) List the members of **one** set Q which satisfies both these conditions.

.....
(2)

$$\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$$

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

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

- (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)

$$\mathcal{E} = \{\text{positive whole numbers less than } 13\}$$

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

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

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

- (a) List the members of the set

- (i) $A \cap B$

- (ii) $B \cup C$

.....
(2)

- (b) Is it true that $14 \in A$?

Tick (✓) the appropriate box.

Yes

No

Explain your answer.

.....
(1)

$$\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$$

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

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

(a) List the members of set B .

.....
(1)

(b) Find $A \cup B$

.....
(1)

(c) Find $A \cap B$

.....
(1)

x is a member of \mathcal{E}

$$x \in B$$

$$x \notin A$$

(d) What are the possible values of x ?

.....
(2)