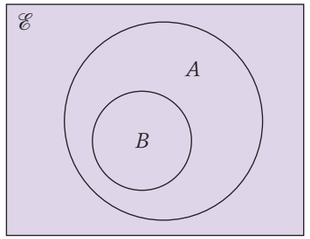
N7 Number exam review

1

Statements
$A \subset B$ $B \subset A$ $A \cup B = \mathscr{E}$ $A \cap B = \varnothing$ $A \cap B = A$

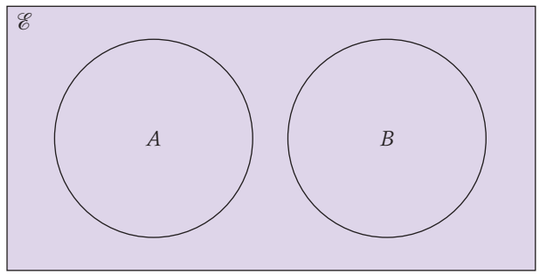
Choose a statement from the box that describes the relationship between sets A and B.

i



.....

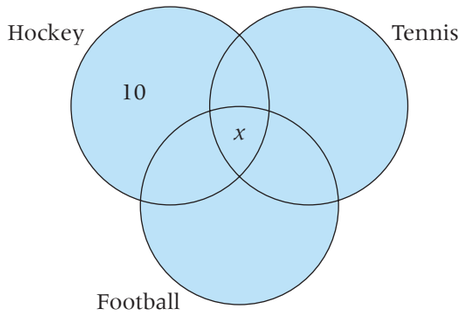
ii



.....

(Total 2 marks)

2 Each student in a group plays at least one of hockey, tennis and football.
10 students play hockey only.
9 play football only.
13 play tennis only.
6 play hockey and football but not tennis.
7 play hockey and tennis.
8 play football and tennis.
x play all three sports.



a Write down an expression, in terms of x, for the number of students who play hockey and tennis, but not football.

.....

(1)

There are 50 students in the group.

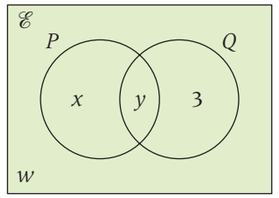
b Find the value of x.

x = ...

(3)

(Total 4 marks)

3



In the Venn diagram, 3, w, x and y represent the **numbers** of elements.
n($\mathscr{E}$) = 24 n(P') = 8 n(($P \cap Q$)') = 15

a Find the value of **i** w **ii** x **iii** y

i w = ...
ii x = ...
iii y = ...

(3)

b i Find n($P' \cap Q$).

.....

ii Find n($P' \cup Q'$).

.....

iii Find n($P \cap Q \cap P'$).

.....

(3)

(Total 6 marks)

4 A = {Prime numbers between 10 and 16}
B = {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.

. . . . . .

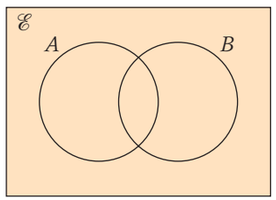
. . . . . .

(1)

(Total 4 marks)

5 The universal set, $\mathscr{E}$ = {Whole numbers}
A = {Multiples of 5}
B = {Multiples of 3}

Sets A and B are represented by the circles in the Venn diagram.



a i On the diagram, shade the region that represents the set $A \cap B'$.

ii Write down **three** members of the set $A \cap B'$.

....., ..., ...

(2)

C = {Multiples of 10}.

b i On the diagram draw a circle to represent the set C.

ii Write down **three** members of the set $A \cap B \cap C'$

....., ..., ...

(2)

(Total 4 marks)

6 a The universal set, $\mathscr{E}$ = {Angela's furniture}.
A = {chairs}.
B = {Kitchen furniture}.

Describe fully the set $A \cap B$.

. . . . . .

. . . . . .

(2)

b P = {2, 4, 6, 8}.
Q = {Odd numbers less than 10}

i List the members of the set $P \cup Q$.

. . . . . .

ii Is it true that $P \cap Q = \varnothing$?

.....

Explain your answer.

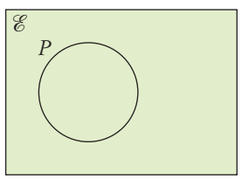
. . . . . .

. . . . . .

(3)

(Total 5 marks)

7



Set P is shown on the Venn Diagram.
Two sets, Q and R, are such that

$$R \subset P$$
$$Q \cap R = \varnothing$$
$$P \cup Q = P$$

Complete the Venn Diagram to show set Q and set R.

(Total 3 marks)