SET THEORY-2

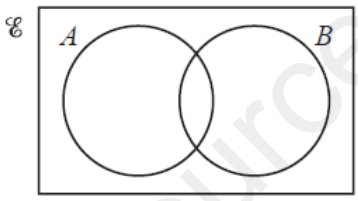
1

Three sets A, B and K are such that $A \subset K$, $B \subset K$ and $A \cap B = \emptyset$.
Draw a Venn diagram to show this information.

[2]

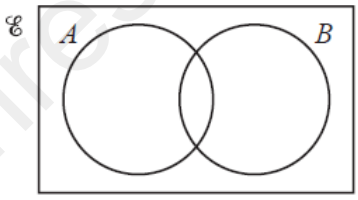
2

(a) Shade the region $A \cap B$.



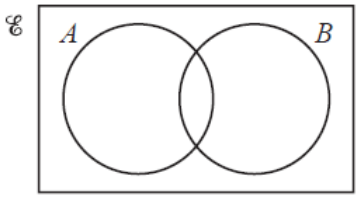
[1]

(b) Shade the region $(A \cup B)'$.



[1]

(c) Shade the complement of set B.



[1]

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3

A and B are sets.
Write the following sets in their simplest form.

(a) $A \cap A'$.

Answer(a) ..... [1]

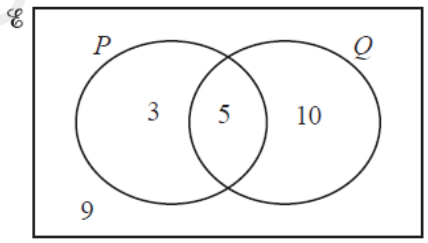
(b) $A \cup A'$.

Answer(b) ..... [1]

(c) $(A \cap B) \cup (A \cap B')$.

Answer(c) ..... [1]

4



The Venn diagram shows the number of elements in each set.

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

Answer(a) ..... [1]

(b) Complete the statement $n(.....) = 17$. [1]

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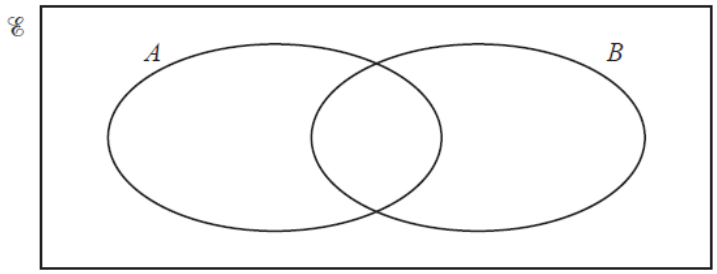
5

(a) $n(\mathscr{E}) = 10,\ n(A) = 7,\ n(B) = 6,\ n(A \cup B)' = 1.$



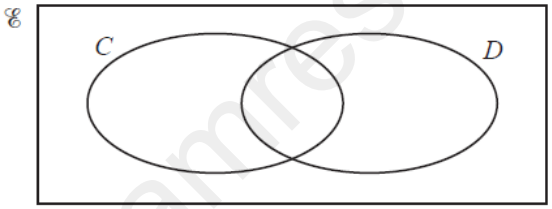
(i) Complete the Venn diagram by writing the number of elements in each subset. [2]

(ii) An element of $\mathscr{E}$ is chosen at random.

Find the probability that this element is an element of $A' \cap B$.

..... [1]

(b) On the Venn diagram below, shade the region $C' \cap D'$.



[1]

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6

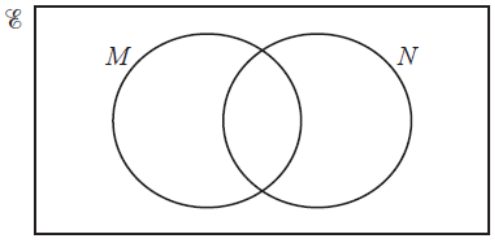
(a) $Q = \{1, 2, 3, 4, 5, 6\}$

Write down a set P where $P \subset Q$.

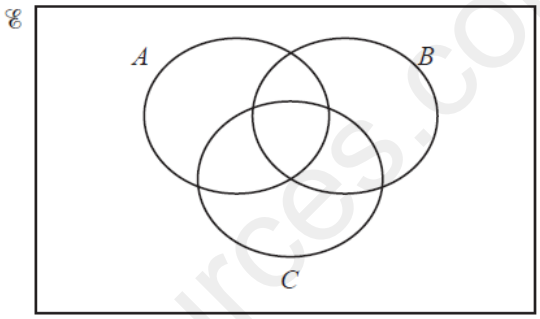
$P =$ ..... [1]

(b) Shade these regions in the Venn diagrams.

$M \cup N'$



$(A \cup B) \cap C'$



[2]

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