Answer ALL ELEVEN questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 $\mathscr{E}$ is the universal set and A, B and C are three sets such that

$\mathscr{E}$ = {even numbers between 5 and 31}
A = {factors of 24}
B = {8, 16}
C = {multiples of 6}

The Venn diagram on the opposite page can be used to show these sets.

(a) Complete the Venn diagram for the sets $\mathscr{E}$, A, B and C

(3)

List the elements of the set

(b) $A \cap C$

(1)

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

(1)

Find

(d) $\mathrm{n}([A \cup B]')$

(1)

(e) $\mathrm{n}([A \cap B] \cup C)$

(1)

A number is selected at random from $\mathscr{E}$

(f) Find the probability that the number is in set B

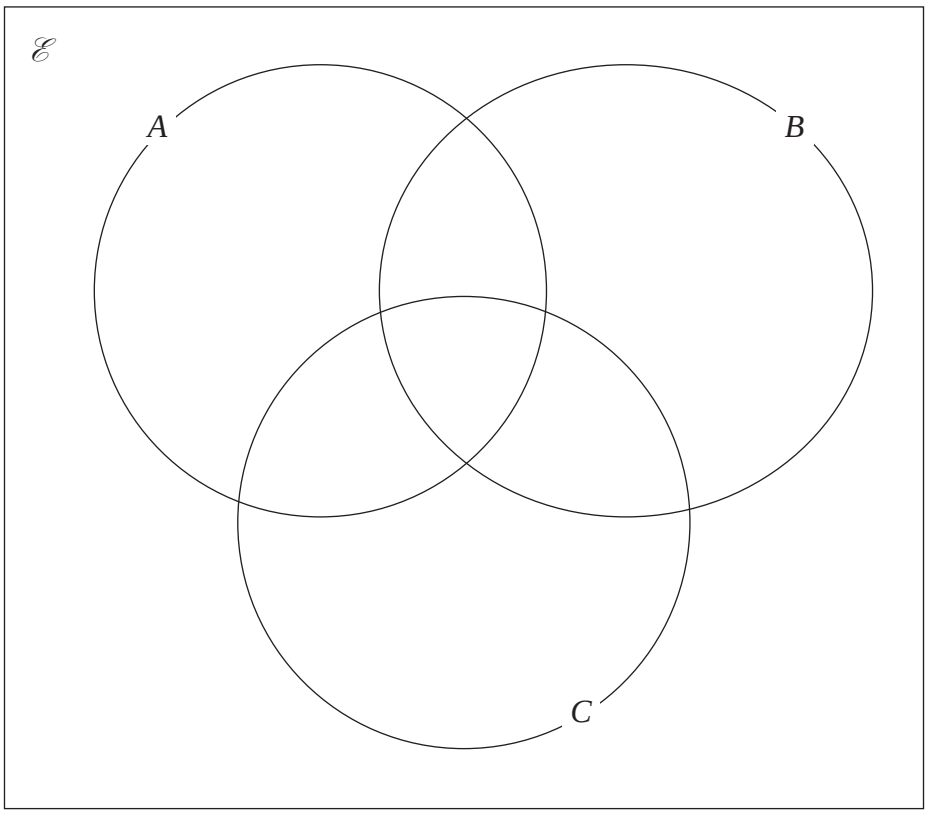
(2)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Question 1 continued

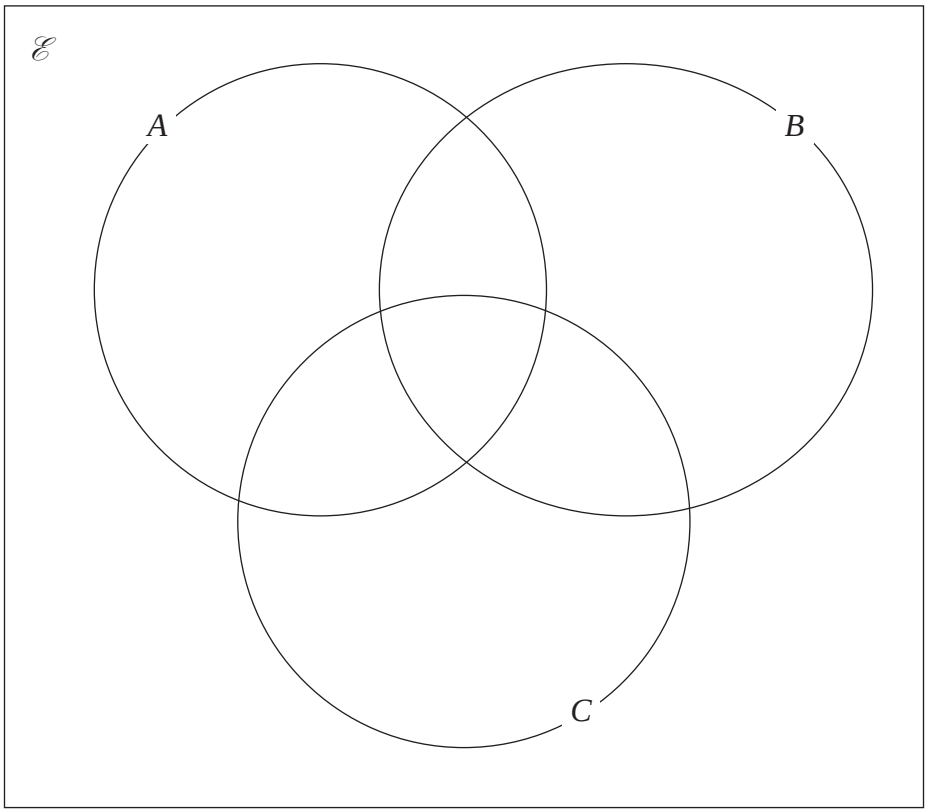


Turn over for a spare copy of the Venn diagram.

Question 1 continued

Question 1 continued

Only use this Venn diagram if you wish to replace your answer to part (a)



(Total for Question 1 is 9 marks)