

- 8 Some college students were each asked which of the subjects Mathematics (M), Physics (P) and Chemistry (C) they were studying.

Here is some information about their answers.

$$n(M \cap P) = 21$$

$$n(M \cap C) = 24$$

$$n(P \cap C) = 25$$

$$n(M) = 43$$

$$n(P) = 50$$

$$n([M \cup P \cup C]') = 25$$

$$n([M \cup P]' \cap C) = 8$$

$$n(M \cap P \cap C) = x, \text{ where } x \text{ is a positive integer.}$$

- (a) Use all the given information to complete the Venn diagram on the opposite page, giving the number of elements in each appropriate subset, in terms of x where necessary. (4)

Given that $n(C) = 40$

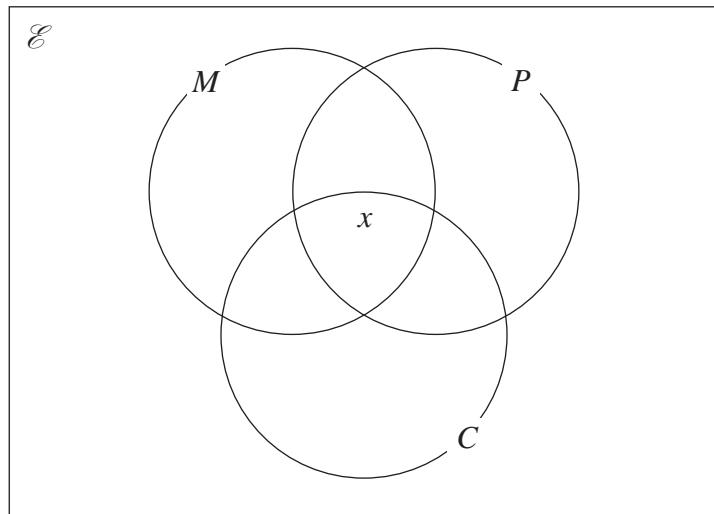
- (b) find the total number of college students that were asked. (4)

One of these college students is to be chosen at random.

Given that the college student studies Chemistry,

- (c) find the probability that this student also studies Physics. (2)



Question 8 continued

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(Total for Question 8 is 10 marks)

P 6 6 0 2 2 R A 0 2 1 3 2