8 **(a)** **(i)** Use set notation to describe the shaded region in the Venn diagram.
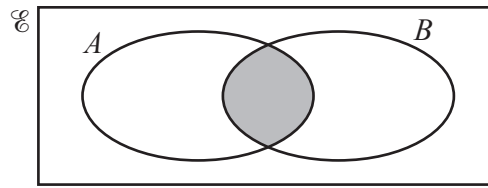
.... [1]

(ii) Shade the correct region in each Venn diagram.

$Q \cup P'$

$(K \cup L) \cap M'$

[2]

(b)

| V | E | N | N | D | I | A | G | R | A | M |
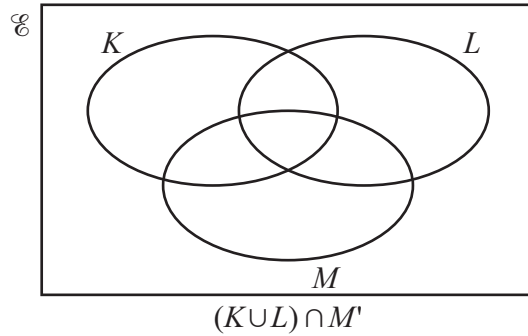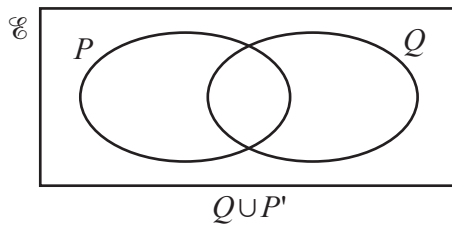
The diagram shows 11 cards.

(i) One of these cards is chosen at random.

Write down the probability that the letter on the card is **not** A.
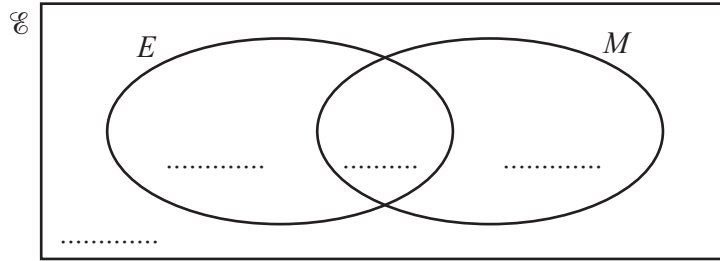
.... [1]

(ii) A card is chosen at random from these 11 cards and then replaced.
A second card is then chosen at random.

Find the probability that exactly one card has the letter N.

.... [3]

(c)

50 students are asked if they like English (*E*) and if they like mathematics (*M*).
3 say they do not like English and do not like mathematics.
33 say they like English.
42 say they like mathematics.

(i) Complete the Venn diagram. [2]

(ii) A student is chosen at random.

Find the probability that this student likes English and likes mathematics.

.... [1]

(iii) Two students are chosen at random.

Find the probability that they both like mathematics.

.... [2]

(iv) Two students who like English are chosen at random.

Find the probability that they both also like mathematics.

.... [2]