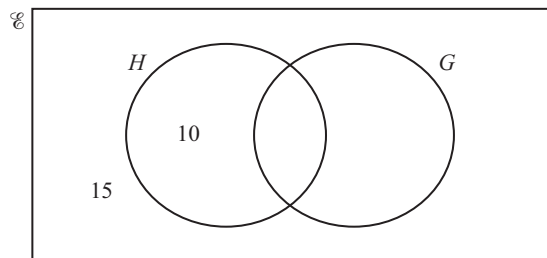


- 24 $\mathcal{U} = \{\text{students in a year group}\}$
 $H = \{\text{students who study History}\}$
 $G = \{\text{students who study Geography}\}$

80 students are in the year group.
 40 students study History.



(a) Complete the Venn diagram. [2]

(b) Find $n(G)$.
 [1]

(c) A student is chosen at random.
 Work out the probability that the student does not study History and does not study Geography.
 [1]

- 25 Expand and simplify.

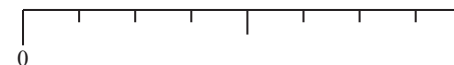
$$(x + 3)(x - 2)$$

..... [2]

- 26 Write 1.753×10^8 as an ordinary number.

..... [1]

- 7 A bag contains 8 discs numbered 1 to 8.
 A disc is picked at random from the bag.



On the probability scale, draw an arrow ($\downarrow$) to show the probability that the number is

(a) an even number, label the arrow A [1]

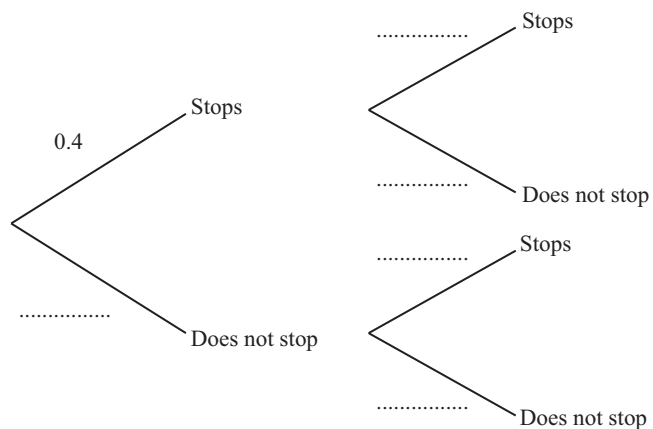
(b) 9, label the arrow B [1]

(c) less than 3, label the arrow C. [1]

- 26** There are 2 sets of traffic lights on Li's journey to work.
 The probability he stops at the first set of traffic lights is 0.4 .
 The probability he stops at the second set of traffic lights is 0.7 .

First set of traffic lights

Second set of traffic lights



- (a) Complete the tree diagram.
 (b) Work out the probability that Li does not stop at both sets of traffic lights.

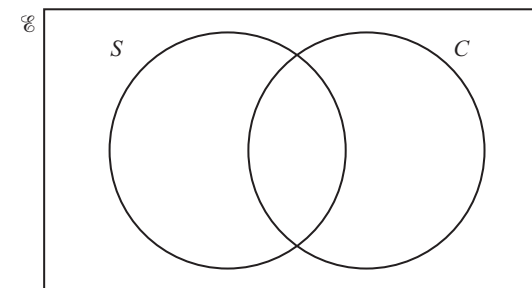
[2]

..... [2]

Question 27 is printed on the next page.

- 12** A fitness club has 100 members.

60 swim (S).
 70 cycle (C).
 25 do not swim or cycle.



- (a) Complete the Venn diagram.

[3]

- (b) One member of the fitness club is chosen at random.

For this member, find

- (i) $P(C)$

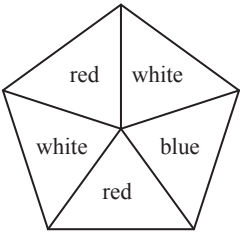
..... [1]

- (ii) $P(S \cap C)$

..... [1]

- (iii) $P(S \cup C')$.

..... [1]



The diagram shows a fair 5-sided spinner.
The spinner is spun once.

(a) Write down the colour the spinner is least likely to land on.

..... [1]

(b) Find the probability that the spinner lands on white.

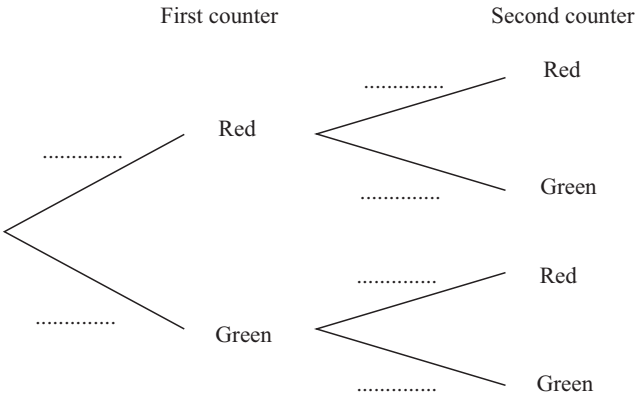
..... [1]

(c) Find the probability that the spinner does not land on red.

..... [1]

19 A box contains 10 counters.
The counters are either red or green.
The ratio red counters : green counters = 1 : 4.

Shareen picks a counter at random, notes its colour and puts it back in the box.
She then picks a second counter at random.



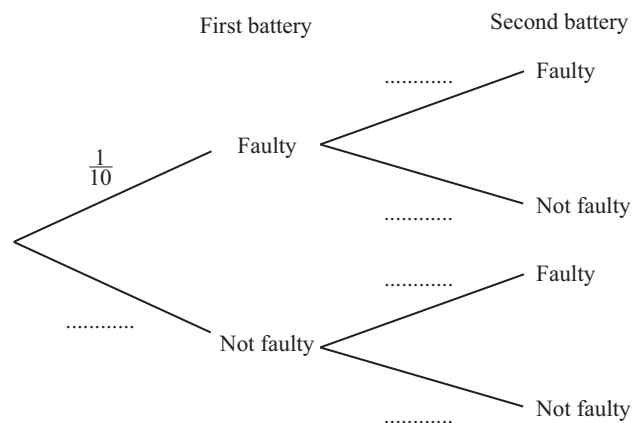
(a) Complete the tree diagram.

[3]

(b) Find the probability that both counters are green.

..... [2]

- 23 Mai buys two batteries.
The probability that a battery is faulty is $\frac{1}{10}$.



(a) Complete the tree diagram. [2]

(b) Find the probability that Mai buys two faulty batteries.

..... [2]

(c) A shop sells 3000 batteries in one month.

Work out the expected number of faulty batteries the shop sells.

..... [1]