

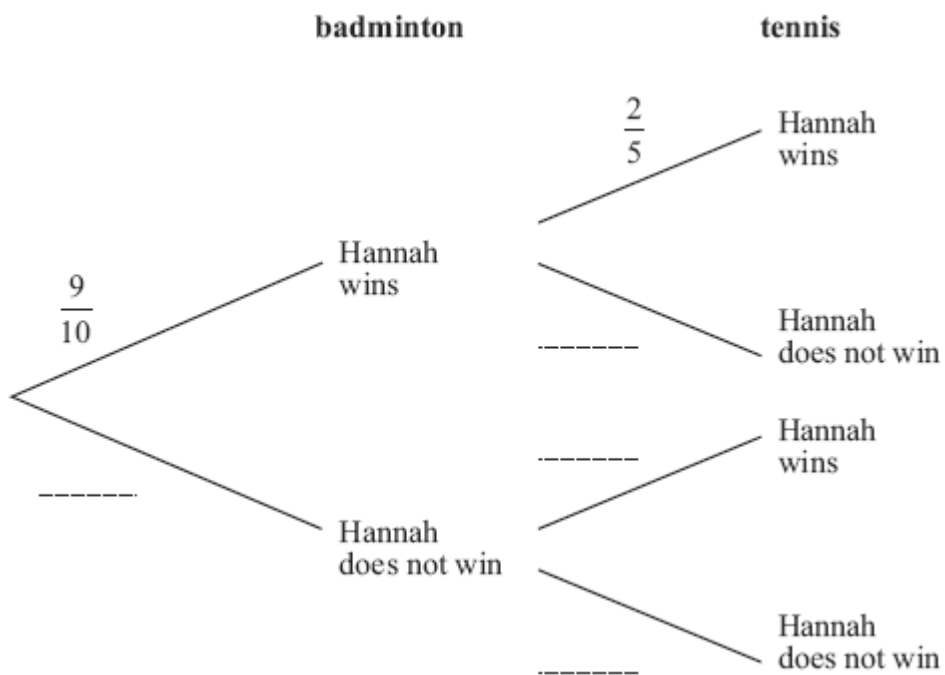
1. Hannah is going to play one badminton match and one tennis match.

The probability that she will win the badminton match is $\frac{9}{10}$

The probability that she will win the tennis match is $\frac{2}{5}$

(a) Complete the probability tree diagram.

(2)



(b) Work out the probability that Hannah will win **both** matches.

(2)

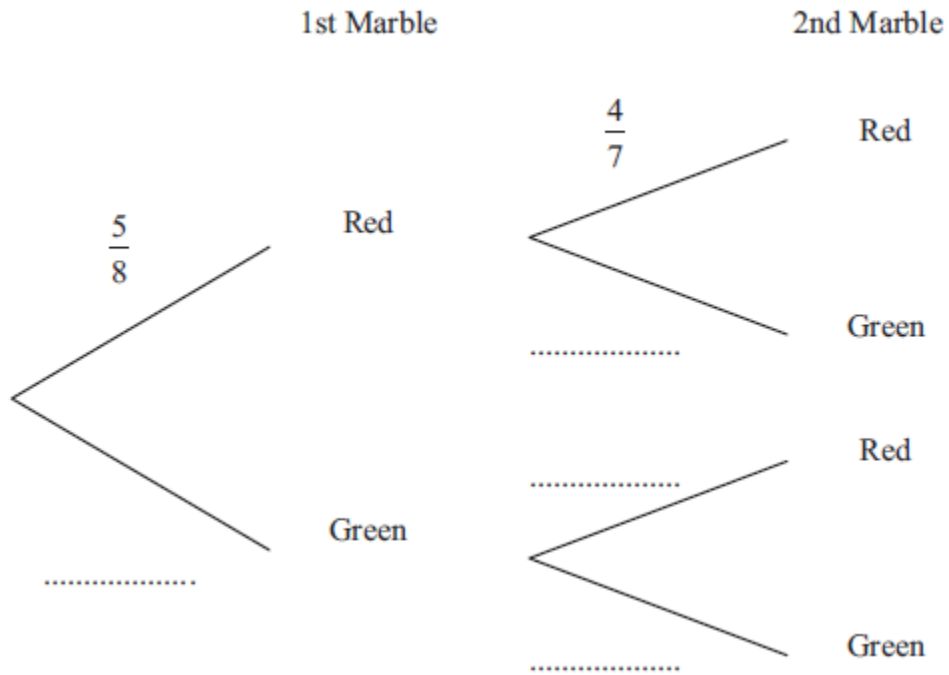
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(4 marks)

2. There are only red marbles and green marbles in a bag.
There are 5 red marbles and 3 green marbles.

Dwayne takes at random a marble from the bag.
He does not put the marble back in the bag.

Dwayne takes at random a second marble from the bag.

- (a) Complete the probability tree diagram.



(2)

- (b) Work out the probability that Dwayne takes marbles of different colours.

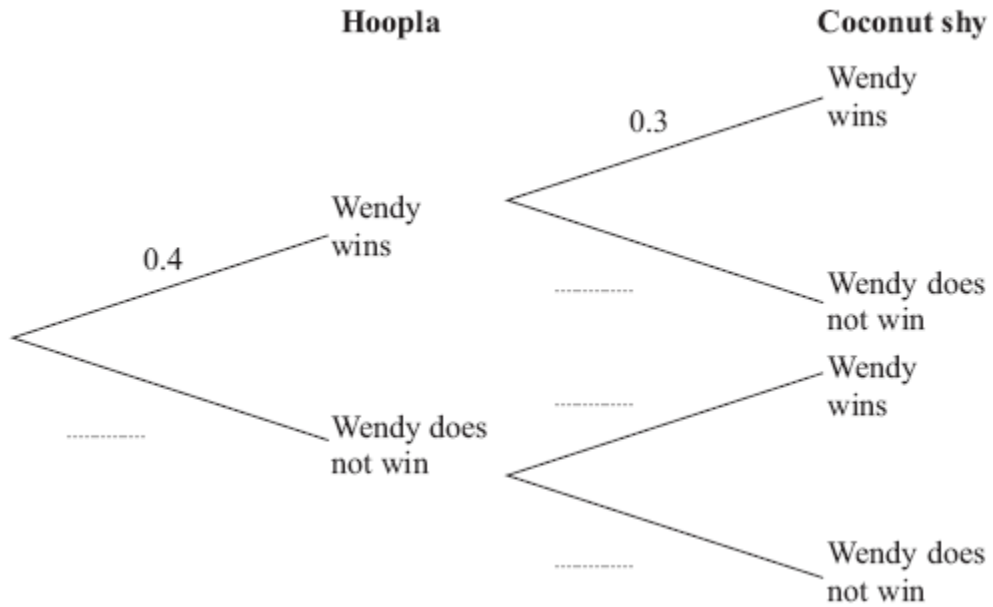
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(3)

(5 marks)

3. Wendy goes to a fun fair.
 She has one go at Hoopla.
 She has one go on the Coconut shy.

The probability that she wins at Hoopla is 0.4
 The probability that she wins on the Coconut shy is 0.3

- (a) Complete the probability tree diagram.



(2)

- (b) Work out the probability that Wendy wins at Hoopla and also wins on the Coconut shy.

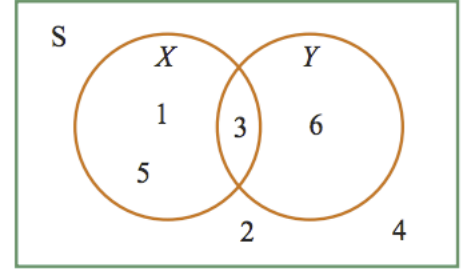
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 (2)

(4 marks)

IM3 L7.4 – Probability of Compound Events and Venn Diagrams

A six-sided die is rolled. The outcomes for this experiment and the events X and Y are shown in the Venn diagram.

- a** List the sample space.
- b** List the set of outcomes for event X .
- c** List the set of outcomes for the event ‘not X ’.
- d** List the set of outcomes for event Y .
- e** List the set of outcomes for the event ‘not Y ’.
- f** List the set of outcomes for event ‘ X and Y ’.
- g**
 - i** List the set of outcomes for the event ‘ X or Y or both’.
 - ii** Is this an ‘inclusive or’ event or an ‘exclusive or’ event?
- h**
 - i** List the set of outcomes for the event ‘ X or Y but not both’.
 - ii** Is this an ‘inclusive or’ event or an ‘exclusive or’ event?
- i** List the outcomes that belong to neither X nor Y .



EXAMPLE #4

In a class of 30 students 25 passed the term mathematics test, 24 passed the science test and 23 students passed both tests.

- a** Draw a Venn diagram to represent this information using M for the event ‘passed mathematics’ and S for the event ‘passed science’.
- b** How many student from this class:
 - i** did not pass mathematics?
 - ii** did not pass science?
 - iii** passed neither mathematics nor science?
 - iv** passed mathematics or science or both?
 - v** passed mathematics or science but not both?
 - vi** passed mathematics but not science?
 - vii** passed science but not mathematics?
 - viii** passed at least one subject?
 - ix** passed at most one subject?
 - x** failed at least one subject?
 - xi** failed at most one subject?

IM3 L7.4 – Probability of Compound Events and Venn Diagrams

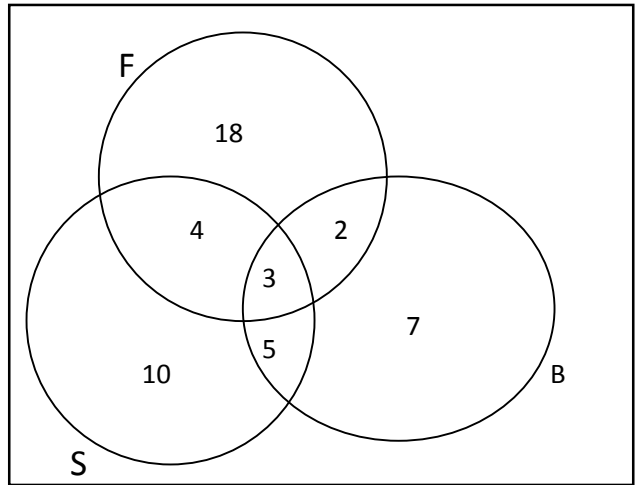
(C) Probabilities and Venn Diagrams

1. A group of 60 students were asked if they played field hockey (F), basketball (B) or soccer (S). The diagram below displays the results.

How probable is it that a randomly chosen student plays::

- i. field hockey & basketball?
- ii. field hockey or basketball?
- iii. field hockey & soccer?
- iv. neither of the three sports?
- v. only 1 sport?

- vi. Basketball **given that** they play soccer?
- vii. Soccer **given that** they play field hockey?



2. The Venn diagram displays the results of a survey of 100 families regarding technology in their homes. Computer (C), DVD player (D) and fax machine (F)

How probable is it that a family has:

- i. a computer at home?
- ii. all three machines?
- iii. none of the machines in their home?
- iv. no fax machine?
- v. a computer and a VCR?
- vi. a VCR or a computer?

- vii. A computer **given that** they have a fax machine?
- viii. A DVD players **given that** they have a computer?

