

Intermediate Maths Sample 1 P2 Q14

Carys has a Monday to Friday job and a weekend job.

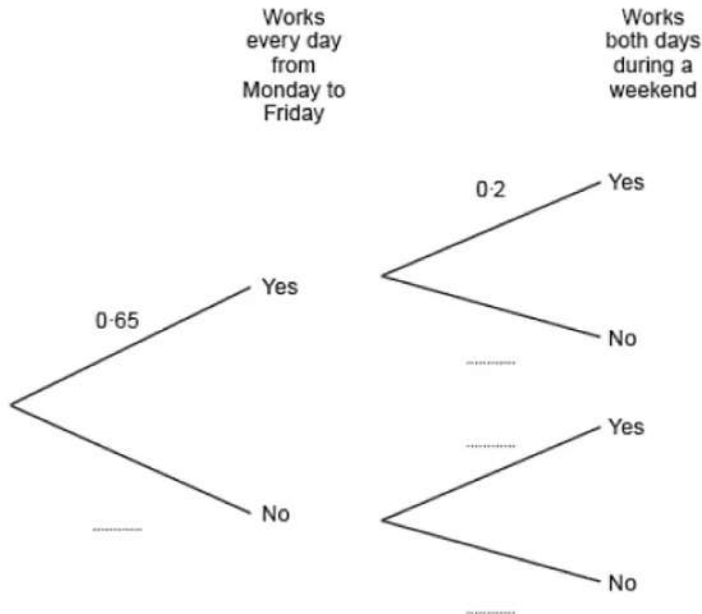
Working Monday to Friday and working weekends are independent events.

In any given week, the probability that Carys works every day from Monday to Friday is 0.65.

The probability that she works both days during a weekend is 0.2.

(a) Complete the following tree diagram.

[2]



(b) Calculate the probability that next week Carys will work every day from **Monday to Sunday**.

[2]

Intermediate Maths Nov 2017 P2 Q16

All the members of a farming club visited the Royal Welsh Agricultural Show.

They all travelled to the show either by bus or by car.

None of them visited the show on more than one day.

The decision to travel by car or by bus was independent of the day of the visit.

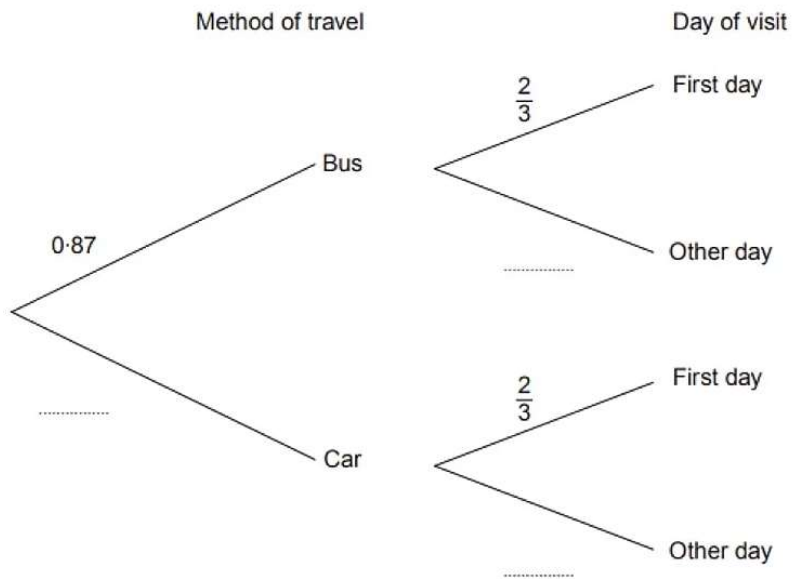
A member of the club was selected at random.

The probability that this member travelled by bus was 0.87.

The probability that this member visited the show on the first day was  $\frac{2}{3}$ .

(a) Complete the tree diagram shown below.

[2]



(b) What is the probability that a member, chosen at random, was **not** one of those who travelled by bus on the first day of the show? [3]

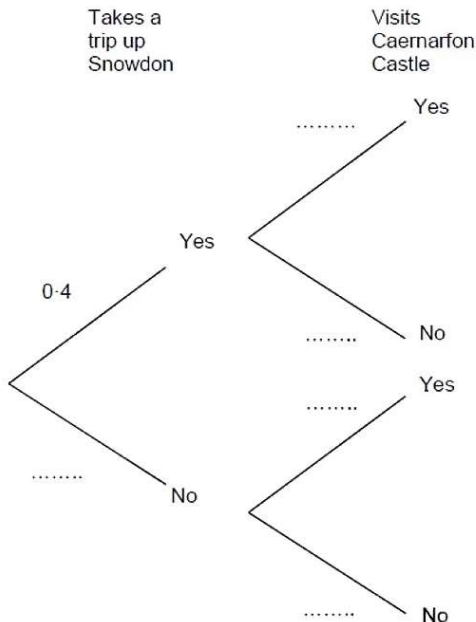
Intermediate Maths Sample 2 P1 Q15

For a particular visitor to Gwynedd, taking a trip up Snowdon is independent of visiting Caernarfon Castle.

The probability that the visitor takes a trip up Snowdon **and** visits Caernarfon Castle is 0.12.

(a) Complete the following tree diagram.

[4]



(b) Calculate the probability that the visitor does not go up Snowdon and does not visit Caernarfon Castle.

[2]

Intermediate Maths Summer 2018 P2 Q16

Visitors to the top of Snowdon can either walk up the mountain or take the mountain railway from Llanberis.

On a particular day, a visitor to the top of Snowdon is chosen at random.

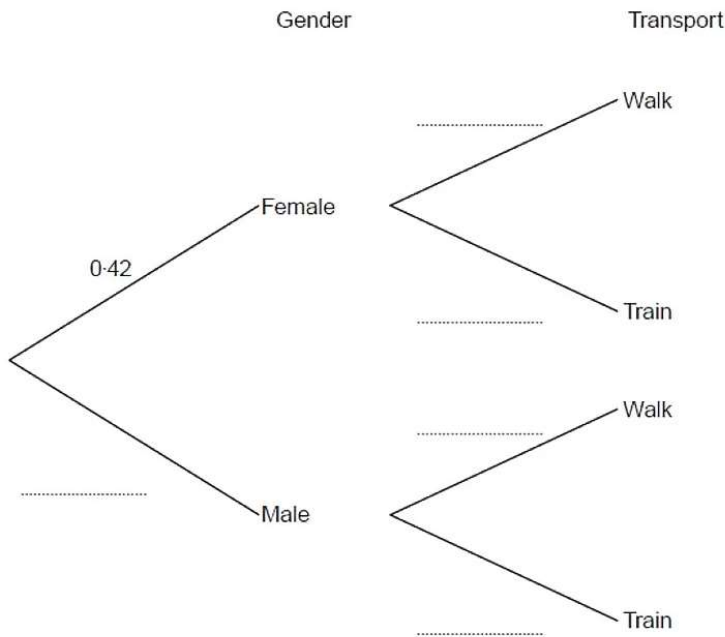
The probability that this person is female is 0.42.

The probability that this person took the train is 0.35.

The decision to walk or take the train is independent of gender.

(a) Complete the tree diagram shown below.

[3]



(b) The person chosen at random receives a gift voucher.

What is the probability that this person is female and travelled up the mountain by train?

[2]

Intermediate Maths Nov 2016 P1 Q16

Alwyn often drives from Bangor to Cardiff.

He always chooses one of two routes for these journeys.

He either travels through Rhayader or through Hereford.

The probability that he travels through Rhayader is 0.7.

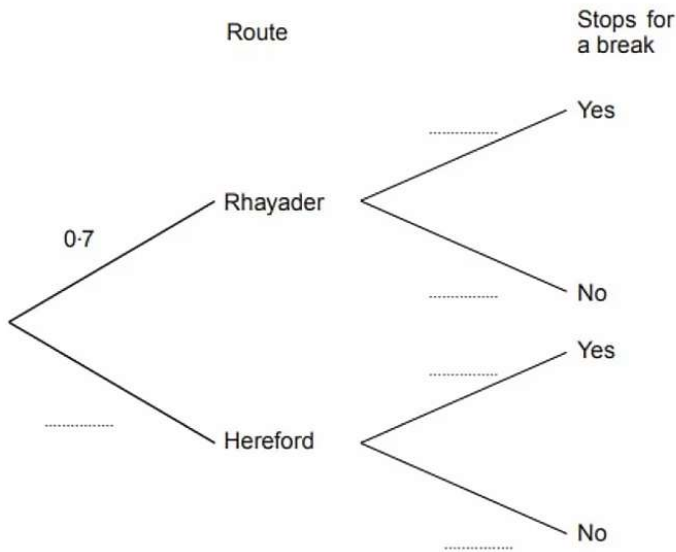
Sometimes he decides to stop for a break during his journey.

His decision is independent of the route he takes.

The probability that he travels through Rhayader **and** stops for a break is 0.42.

(a) Complete the following tree diagram.

[4]

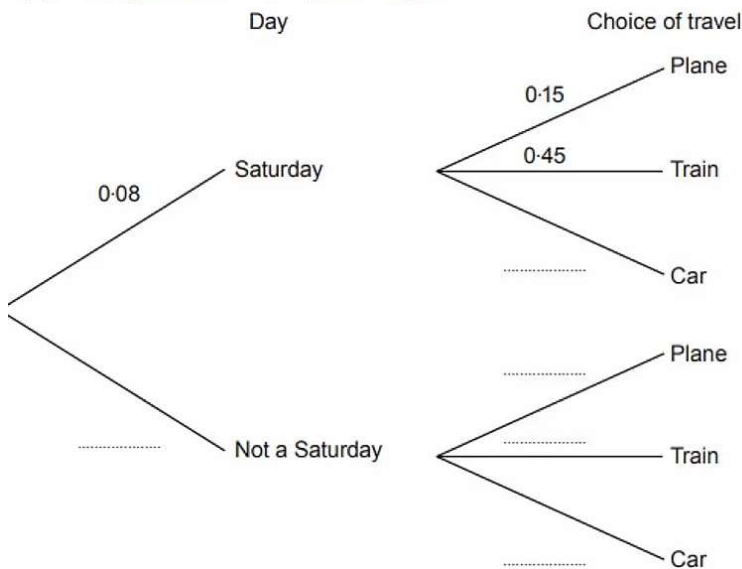


(b) Calculate the probability that Alwyn travels through Hereford but **does not** stop for a break. [2]

Intermediate Maths Nov 2018 P2 Q17

Alwena regularly travels from Anglesey to Cardiff to attend meetings. For each meeting, she chooses one of three ways to travel: by plane, train or car. The probability of a meeting being held on a Saturday is 0.08. The probability that Alwena travels by plane to a meeting is 0.15. The probability that she travels by train is 0.45. Her decision on how to travel is independent of the day on which the meeting is held.

(a) Complete the following tree diagram. [3]



(b) A meeting is chosen at random. Calculate the probability that the meeting is held on a Saturday and that Alwena travels by plane or by car. [3]

100 boxes each contain 10 balls.

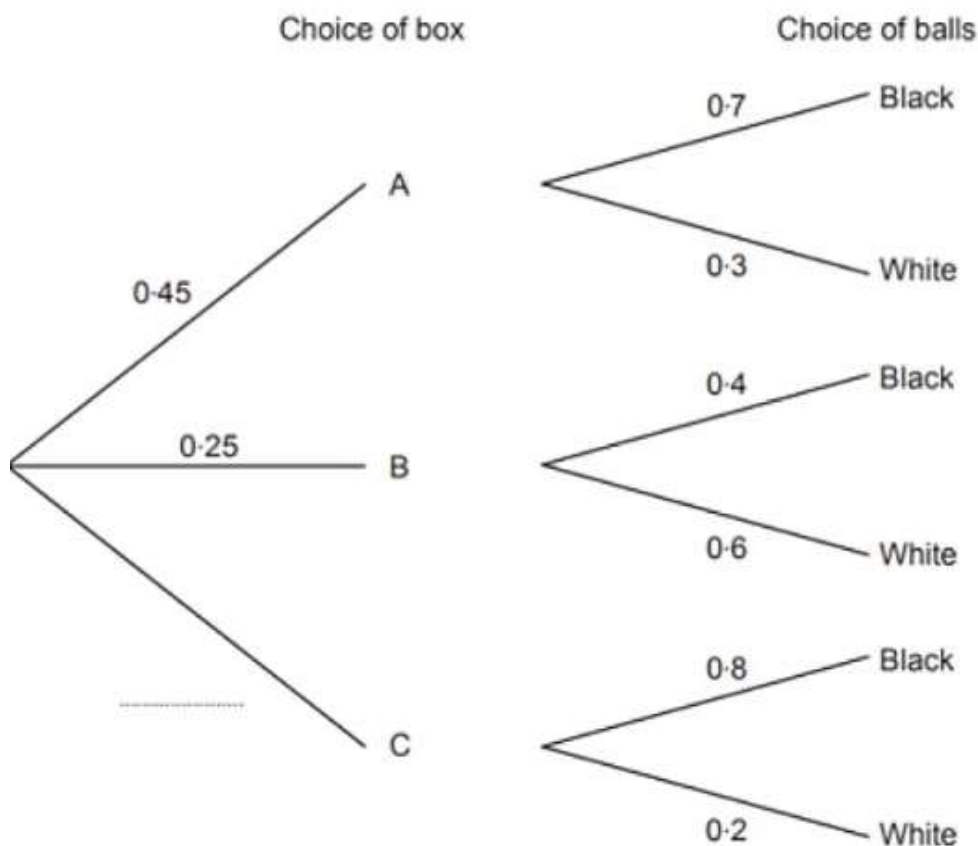
45 of the boxes are labelled A.  
 They each contain 7 black balls and 3 white balls.

25 of the boxes are labelled B.  
 They each contain 4 black balls and 6 white balls.

The rest of the boxes are labelled C.  
 They each contain 8 black balls and 2 white balls.

In a game, a player chooses a box at random, and then chooses a ball at random from that box.

- (a) Complete the tree diagram shown below. [1]



- (b) What is the probability that a player will select a black ball? [3]
- (c) If a large number of people played the game, approximately what fraction of them would you expect to choose a white ball?  
 Circle your answer. [1]

$\frac{1}{10}$                    $\frac{1}{5}$                    $\frac{1}{4}$                    $\frac{1}{3}$                    $\frac{1}{2}$

Intermediate Maths Summer 2019 P1 Q18

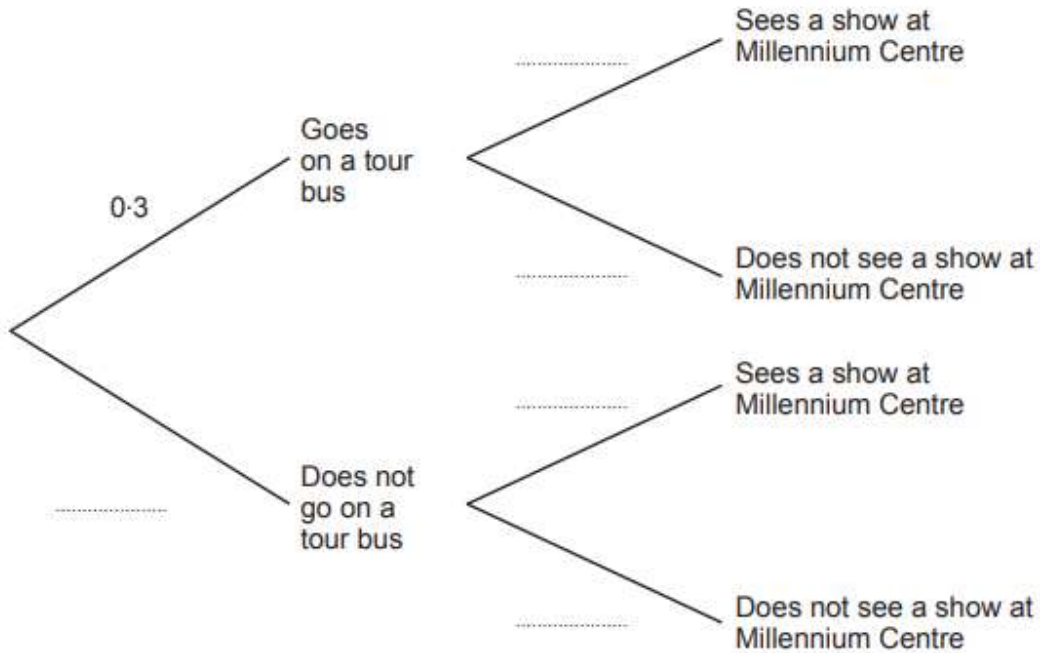
Leah is visiting Cardiff.

The probability that she will go on a tour bus is 0.3.

The probability of Leah seeing a show at the Millennium Centre is independent of her going on a tour bus.

The probability that she goes on a tour bus and sees a show at the Millennium Centre is 0.24.

- (a) Complete the following tree diagram. [4]



- (b) Calculate the probability that Leah does not go on a tour bus and does not see a show at the Millennium Centre. [2]