Name Class



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Probability tree diagrams

(9 - 1) Topic booklet

HIGHER

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

Instructions

- •Use black ink or ball-point pen.
- •Fill in the boxes at the top of this page with your name, centre number and candidate number.
- •Answer all questions.
- •Answer the questions in the spaces provided
- there may be more space than you need.
- •Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must show all your working out.
- •If the question is a **1F** question you are not allowed to use a calculator.
- •If the question is a **2F** or a **3F** question, you may use a calculator to help you answer.

Information

- •The marks for **each** question are shown in brackets
- use this as a guide as to how much time to spend on each question.

Advice

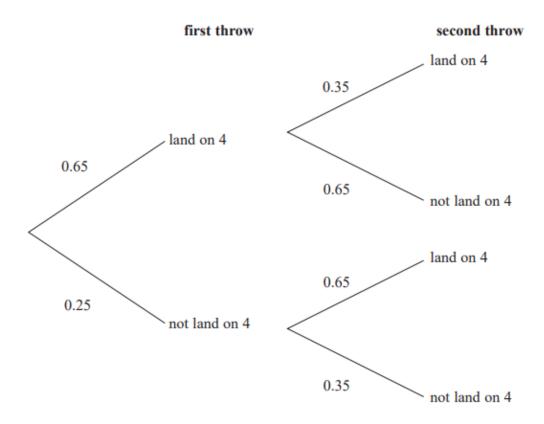
- •Read each question carefully before you start to answer it.
- •Keep an eye on the time.
- •Try to answer every question.
- •Check your answers if you have time at the end.

Answer ALL questions Write your answers in the space provided. You must write down all the stages in your working.

4 When a biased 6-sided dice is thrown once, the probability that it will land on 4 is 0.65 The biased dice is thrown twice.

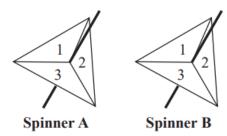
Amir draws this probability tree diagram.

The diagram is not correct.



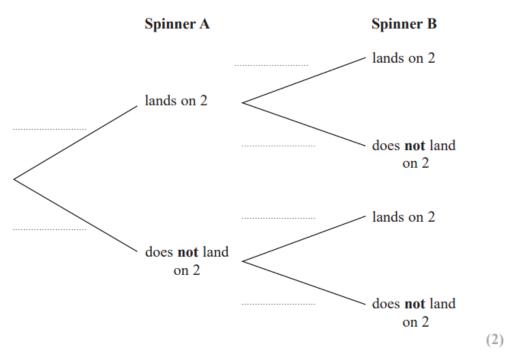
Write down two things that are wrong with the probability tree diagram.				
1				
2				
June 2018 – Paper 3H	(Total for Question 4 is 2 marks)			

5 Amanda has two fair 3-sided spinners.



Amanda spins each spinner once.

(a) Complete the probability tree diagram.



(b) Work out the probability that Spinner A lands on 2 and Spinner B does not land on 2

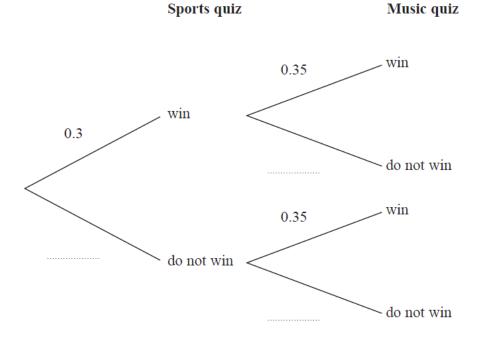
(2)

(Total for Question 5 is 4 marks)

6 One weekend the Keddie family is going to do a sports quiz and a music quiz.

The probability that the family will win the sports quiz is 0.3 The probability that the family will win the music quiz is 0.35

(a) Complete the probability tree diagram.



(b) Work out the probability that the Keddie family will win both the sports quiz and the music quiz.

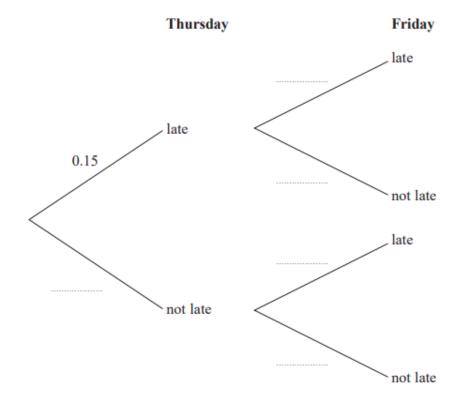
(2)

(2)

November 2022 – Paper 3H

(Total for Question 6 is 4 marks)

- 10 Mary travels to work by train every day.
 The probability that her train will be late on any day is 0.15
 - (a) Complete the probability tree diagram for Thursday and Friday.

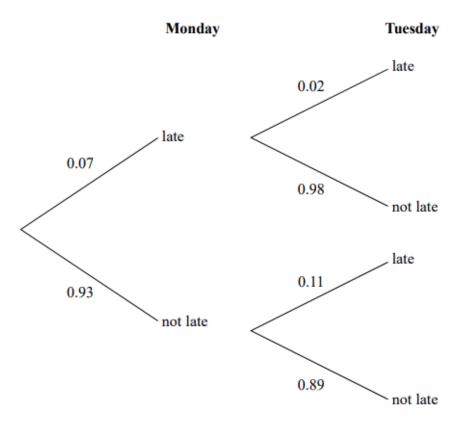


(2)

(b) Work out the probability that her train will be late on at least one of these two days.

(3)

11 The probability tree diagram shows the probabilities that Bismah will be late for work on two days next week.



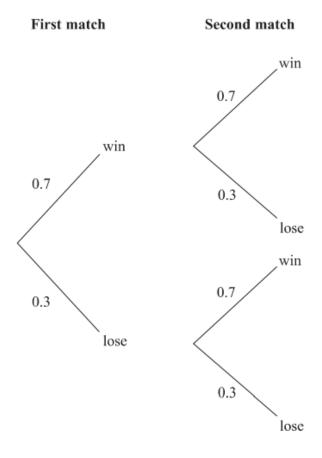
Calculate the probability that Bismah will be late on exactly one of the two days.

November 2019 – Paper 3H

(Total for Question 11 is 3 marks)

11 Finlay plays two tennis matches.

The probability that he will win a match and the probability that he will lose a match are shown in the probability tree diagram.



(a) Work out the probability that Finlay wins both matches.

(2)

(b) Work out the probability that Finlay loses at least one match.

(2)

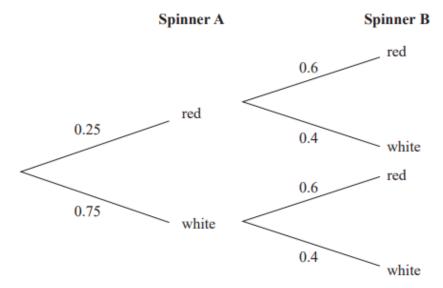
Specimen 1 – Paper 2H

(Total for Question 11 is 4 marks)

12 Alan has two spinners, spinner A and spinner B. Each spinner can land on only red or white.

The probability that spinner **A** will land on red is 0.25 The probability that spinner **B** will land on red is 0.6

The probability tree diagram shows this information.



Alan spins spinner **A** once and he spins spinner **B** once. He does this a number of times.

The number of times both spinners land on red is 24

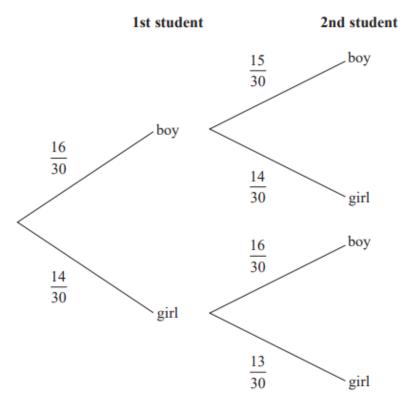
Work out an estimate for the number of times both spinners land on white.

(Total for Question 12 is 3 marks)

12 There are 30 students in Mr Lear's class. 16 of the students are boys.

Two students from the class are chosen at random.

Mr Lear draws this probability tree diagram for this information.



(a) Write down one thing that is wrong with the probabilities in the probability tree diagram.

(1)

Owen and Wasim play for the school football team.

The probability that Owen will score a goal in the next match is 0.4 The probability that Wasim will score a goal in the next match is 0.25

Mr Slater says,

"The probability that both boys will score a goal in the next match is 0.4 + 0.25"

(b) Is Mr Slater right? Give a reason for your answer.

(1)

June 2017 - Paper 2H

(Total for Question 12 is 2 marks)

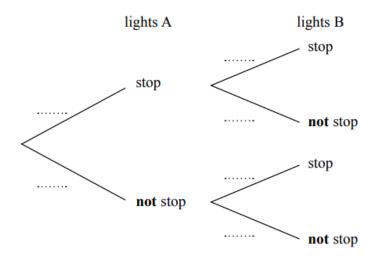
12 A and B are two sets of traffic lights on a road.

The probability that a car is stopped by lights A is 0.4

If a car is stopped by lights A, then the probability that the car is **not** stopped by lights B is 0.7

If a car is **not** stopped by lights A, then the probability that the car is **not** stopped by lights B is 0.2

(a) Complete the probability tree diagram for this information.



(2)

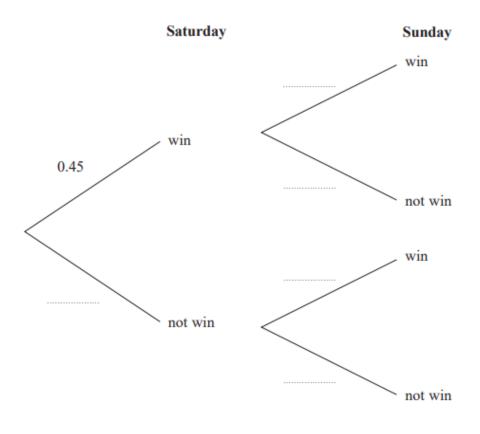
Mark drove along this road.

He was stopped by just one of the sets of traffic lights.

(b) Is it more likely that he was stopped by lights A or by lights B? You must show your working. 15 A darts team is going to play a match on Saturday and on Sunday. The probability that the team will win on Saturday is 0.45

If they win on Saturday, the probability that they will win on Sunday is 0.67 If they do **not** win on Saturday, the probability that they will win on Sunday is 0.35

(a) Complete the probability tree diagram.



(b) Find the probability that the team will win exactly one of the two matches.

(3)

(2)

(Total for Question 15 is 5 marks)

17	There	are	Q	counters	in	2	hao
1 /	THEFE	arc	,	counters	ш	a	vag.

7 of the counters are green.

2 of the counters are blue.

Ria takes at random two counters from the bag.

Work out the probability that Ria takes one counter of each colour.

You must show your working.

May 2017 – Paper 1H

(Total for Question 17 is 4 marks)

ember 2022 – Paper 1H	(Total for Question 20 is 3 marks)
Work out the probability that he takes cards of	of different colours.
Alfie takes at random 2 of these cards.	
7 green cards and 1 white card.	
7 grace condo	

20 Alfie has 11 cards.