

4.2 Probability Diagrams – Tree & Venn Diagrams

Question Paper

Course	CIE IGCSE Maths
Section	4. Probability & Statistics
Topic	4.2 Probability Diagrams – Tree & Venn Diagrams
Difficulty	Very Hard

Time allowed: 40

Score: /32

Percentage: /100

Question 1a

Box A and box B each contain blue and green pens only.

Raphael picks a pen at random from box A and Paulo picks a pen at random from box B.

The probability that Raphael picks a blue pen is $\frac{2}{3}$.

The probability that both Raphael and Paulo pick a blue pen is $\frac{8}{15}$.

Find the probability that Paulo picks a blue pen.

[2]

[2 marks]**Question 1b**

Find the probability that both Raphael and Paulo pick a green pen.

[3]

[3 marks]

Question 2



The diagram shows six discs.

Each disc has a colour and a number.

Two of the six discs are picked at random **with** replacement.

Find the probability that both discs have the same colour.

[3]

[3 marks]

Question 3a

The probability that Andrei cycles to school is r .

Write down, in terms of r , the probability that Andrei **does not** cycle to school.

[1]

[1 mark]

Question 3b

The probability that Benoit **does not** cycle to school is $1.3 - r$.

The probability that both Andrei and Benoit **do not** cycle to school is 0.4 .

i)

Complete the equation in terms of r .

$$(\dots\dots\dots) \times (\dots\dots\dots) = 0.4$$

[1]

ii)

Show that this equation simplifies to $10r^2 - 23r + 9 = 0$.

[3]

iii)

Solve by factorisation $10r^2 - 23r + 9 = 0$.

$$r = \dots\dots\dots \text{ or } r = \dots\dots\dots [3]$$

iv)

Find the probability that Benoit **does not** cycle to school.

[1]

[8 marks]

Question 4

The probability that the school bus is late is $\frac{9}{10}$.

If the school bus is late, the probability that Seb travels on the bus is $\frac{15}{16}$.

If the school bus is on time, the probability that Seb travels on the bus is $\frac{3}{4}$.

Find the probability that Seb travels on the bus.

[3]

[3 marks]**Question 5a**

Harris is taking a driving test.

The probability that he passes the driving test at the first attempt is 0.6.

If he fails, the probability that he passes at any further attempt is 0.75.

Calculate the probability that Harris passes the driving test at the second attempt.

[2]

[2 marks]

Question 5b

Calculate the probability that Harris takes no more than three attempts to pass the driving test.

[2]

[2 marks]

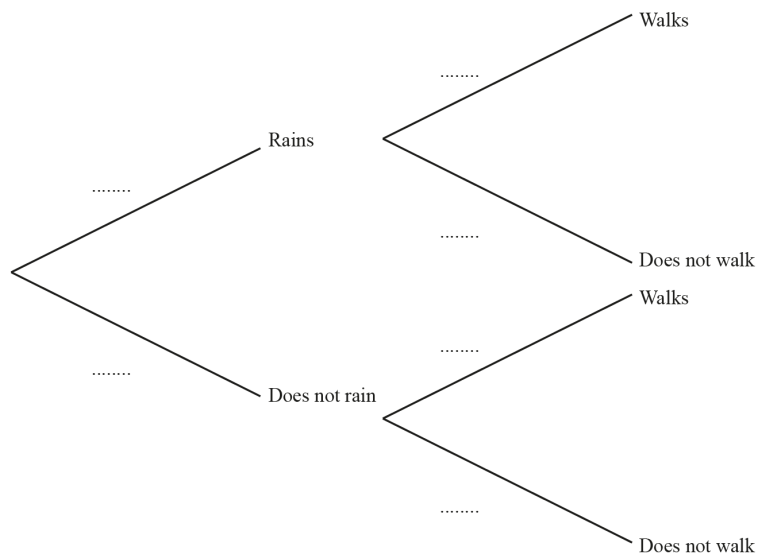
Question 6a

The probability that it will rain tomorrow is $\frac{5}{8}$.

If it rains, the probability that Rafael walks to school is $\frac{1}{6}$.

If it does not rain, the probability that Rafael walks to school is $\frac{7}{10}$.

Complete the tree diagram.



[3]

[3 marks]

Question 6b

Calculate the probability that it will rain tomorrow and Rafael walks to school.

[2]

[2 marks]**Question 6c**

Calculate the probability that Rafael does not walk to school.

[3]

[3 marks]