



Name: _____ **Date:** _____ **Score:** _____ / 40

1 Ruby rolls a fair six-sided dice once.

a. Choose a word from the box to describe each probability.

impossible	unlikely	even chance	likely	certain
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- i. She rolls an even number.
- ii. She rolls a 7.
- iii. She rolls a number less than 6.

b. The probability that it rains tomorrow is 0.35. Work out the probability that it does not rain tomorrow.

(4 marks)

Answer _____

2 Write down whether each type of data is **discrete** or **continuous**.

- a. The number of pupils in a class
- b. The mass of an apple
- c. The time taken to run 100 m
- d. The number of goals scored in a football match

(2 marks)

Answer _____

3 A spinner can land on red, blue, green or yellow.

The table shows the probabilities for three of the colours.

Colour	red	blue	green	yellow
Probability	0.2	0.35	0.1	

Work out the probability that the spinner lands on yellow.

(2 marks)

Answer _____

- 4** Tom thinks his dice might be biased. He rolls it 60 times and gets a six 22 times.
- Work out the relative frequency of rolling a six.
 - Tom says, "My dice is not fair." Do the results support what Tom says? Give a reason for your answer.
 - Tom rolls the dice another 300 times. Use his results to estimate the number of sixes he will get.

(4 marks)

Answer _____

- 5** Spinner A has sections numbered 1, 2 and 3. Spinner B has sections numbered 1, 2, 3 and 4. Both spinners are fair.

Mo spins both spinners and adds the two numbers to get a total.

+	1	2	3	4
1	2	3		
2	3			6
3			6	

- Complete the sample space diagram. Spinner A is down the side and spinner B is across the top.
- Work out the probability that the total is 5.
- Work out the probability that the total is an even number.

(4 marks)

Answer _____

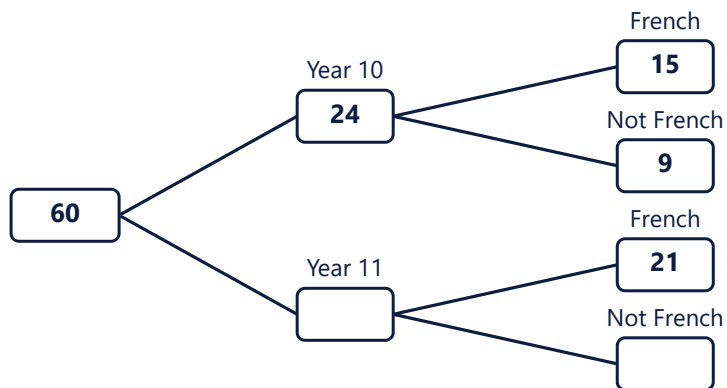
6 There are 60 students in Year 10 and Year 11 at a small school.

24 of the students are in Year 10 and the rest are in Year 11.

Of the Year 10 students, 15 study French and 9 do not.

Of the Year 11 students, 21 study French.

- Work out the number of students in Year 11.
- Work out the number of Year 11 students who do not study French.



(3 marks)

Answer _____

7 A spinner can land on red, blue, green or yellow. The table shows the probabilities.

Colour	red	blue	green	yellow
Probability	x	$2x$	0.25	0.15

- Work out the value of x .
- The spinner is spun 150 times. Work out an estimate for the number of times it lands on blue.

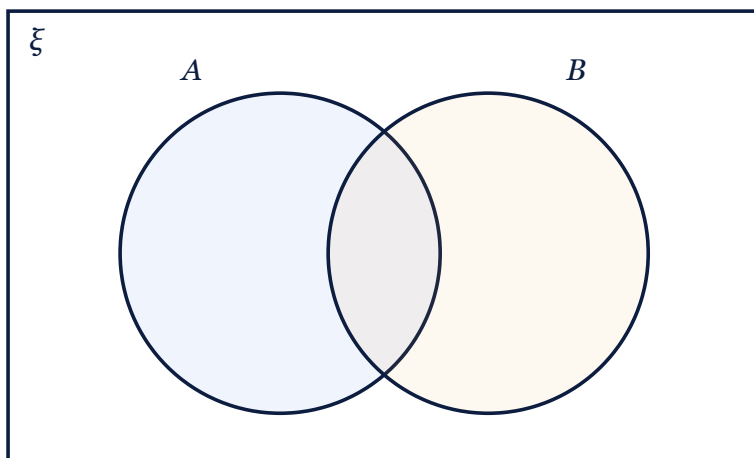
(3 marks)

Answer _____

8 $\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$

$A = \{\text{multiples of 3}\}$ $B = \{\text{even numbers}\}$

Complete the Venn diagram.



(3 marks)

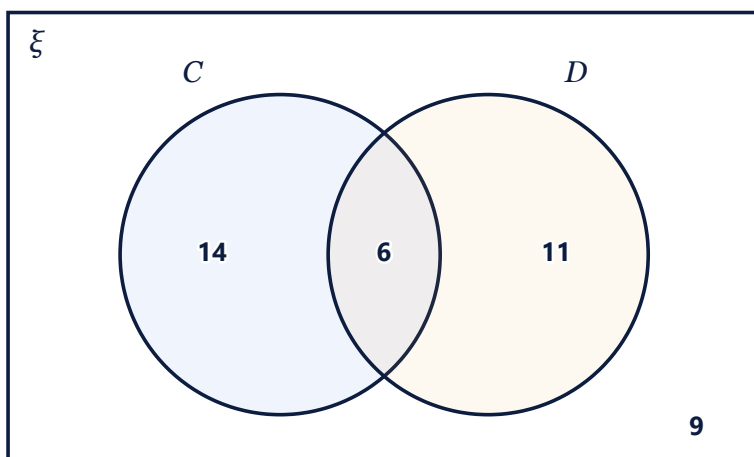
Answer _____

9 40 people were asked whether they drink coffee (C) and whether they drink tea (D).

14 drink coffee only, 6 drink both, 11 drink tea only and 9 drink neither.

One of the 40 people is chosen at random.

- Find the probability that this person drinks both coffee and tea.
- Find the probability that this person drinks coffee or tea or both.



(3 marks)

Answer _____

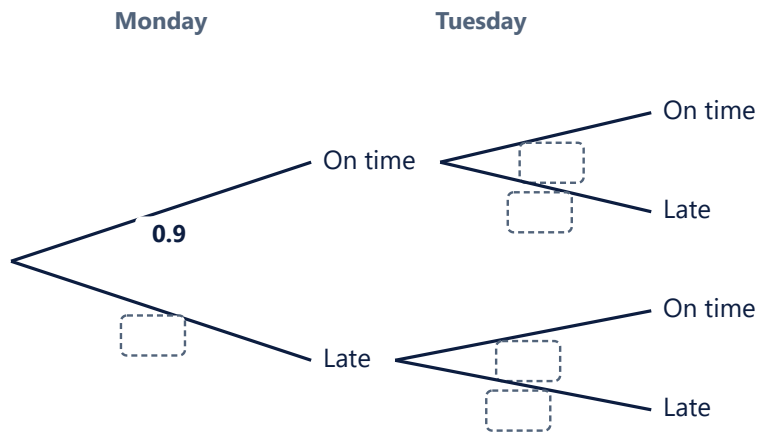
10

The probability that Jon's bus is on time on any day is 0.9.

Whether the bus is on time on one day is independent of any other day.

Jon catches the bus on Monday and on Tuesday.

- Complete the probability tree diagram.
- Work out the probability that the bus is on time on both days.



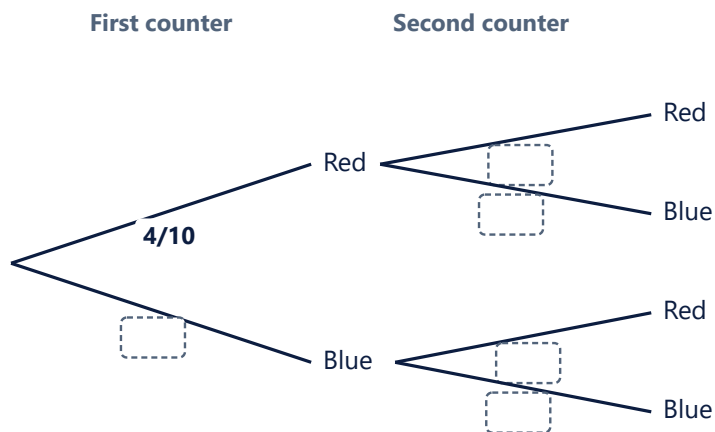
(4 marks)

Answer

11

A bag contains 4 red counters and 6 blue counters. Isla takes a counter at random and does **not** put it back. She then takes a second counter at random.

- Explain why the colour of the second counter is not independent of the colour of the first counter.
- Complete the probability tree diagram.
- Work out the probability that both counters are red.



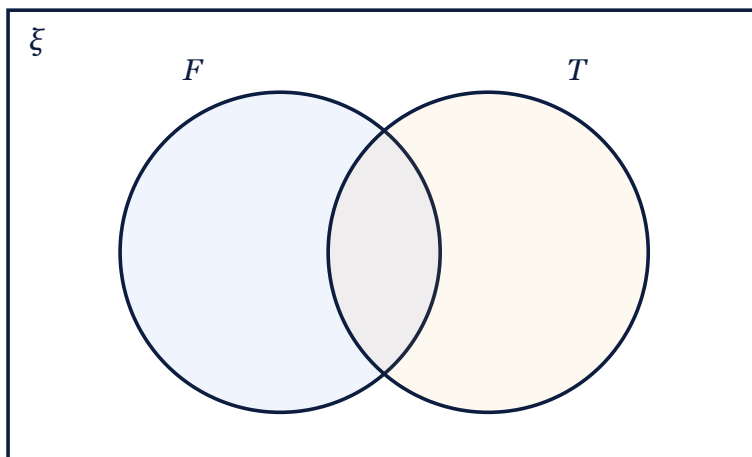
(4 marks)

Answer _____

12

There are 30 pupils in a sports club. 18 play football (F). 12 play tennis (T). 5 play both football and tennis.

- Complete the Venn diagram to show the number of pupils in each region.
- One pupil is chosen at random. Work out the probability that this pupil plays neither sport.
- A pupil who plays football is chosen at random. Work out the probability that this pupil also plays tennis.



(4 marks)

Answer _____

End of questions | Total 40 marks