Probability – 2022 GCSE Mathematics Foundation

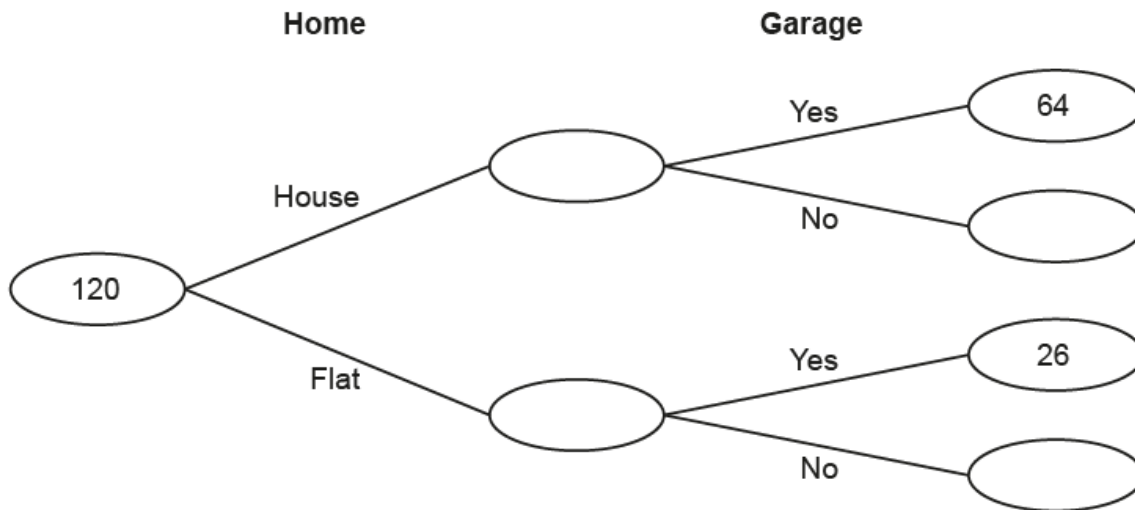1. June/2022/Paper_J560/01/No.11

   120 new homes are built in a village.
   Each home is either a house or a flat.
   Each home either has a garage or does not have a garage.
   64 of the houses have a garage and 26 of the flats have a garage.

   This frequency tree shows the above information.

   Home   **Garage**

   120 — House — Yes — 64
              — No
       — Flat — Yes — 26
              — No

   (a) $\frac{5}{8}$ of the homes are houses.

   Complete the frequency tree. **[4]**

   (b) Show that 75% of the homes have a garage.

   ....

   ....
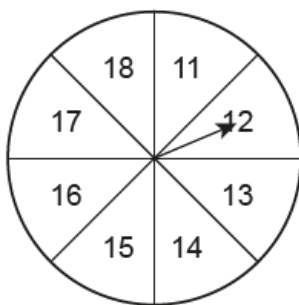
   [2]

2. June/2022/Paper_J560/02/No.4

A student makes a fair 8-sided spinner.
They write the numbers 11, 12, 13, 14, 15, 16, 17 and 18 on the spinner.

(a) Write down the probability of the student's spinner landing on a number which is less than 12.

(a) .... **[1]**

(b) Find the probability of the student's spinner landing on a multiple of 3.

(b) .... **[2]**

2. June/2022/Paper_J560/02/No.4

3. June/2022/Paper_J560/02/No.17

Morgan is playing a computer game.
They can score 0, 1, 2 or 3 points on each turn.
They record their scores for 100 turns.
The table shows the relative frequencies of their scores.

Score	0	1	2	3
Relative frequency	0.08	0.42	0.38	

(a) Complete the table. [2]

(b) Morgan says

I scored more than 160 points **in total** in my 100 turns.

Is Morgan correct?
Show how you decide.

.... [4]

3. June/2022/Paper_J560/02/No.17

4. June/2022/Paper_J560/02/No.18

A bag only contains red marbles, blue marbles and yellow marbles.

- The probability of picking a red marble is $\frac{2}{5}$.
- There are nine yellow marbles.
- The probability of picking a blue marble is three times as likely as picking a yellow marble.

Work out the **total** number of marbles in the bag.
You must show your working.

.... **[5]**

5. June/2022/Paper_J560/03/No.5

A test has 20 questions.

Amaya attempts all of the questions.
She gets 65% of the questions correct.
Kai gets six of the questions wrong.

Who has the smallest number of questions wrong?
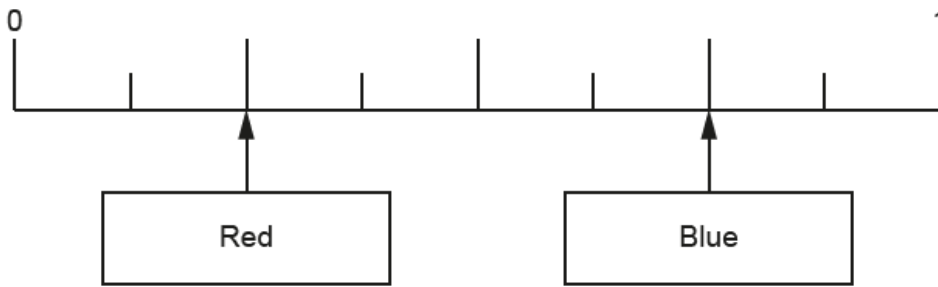Show working to support your answer.

.... because ....

.... **[3]**

6. June/2022/Paper_J560/03/No.10

Each edge of a fair spinner is coloured either red or blue.

The scale shows the probability of the spinner landing on red and of landing on blue.

0   1

Red   Blue

(a) Write down, as a fraction, the probability of the spinner landing on red.

(a) .... [1]

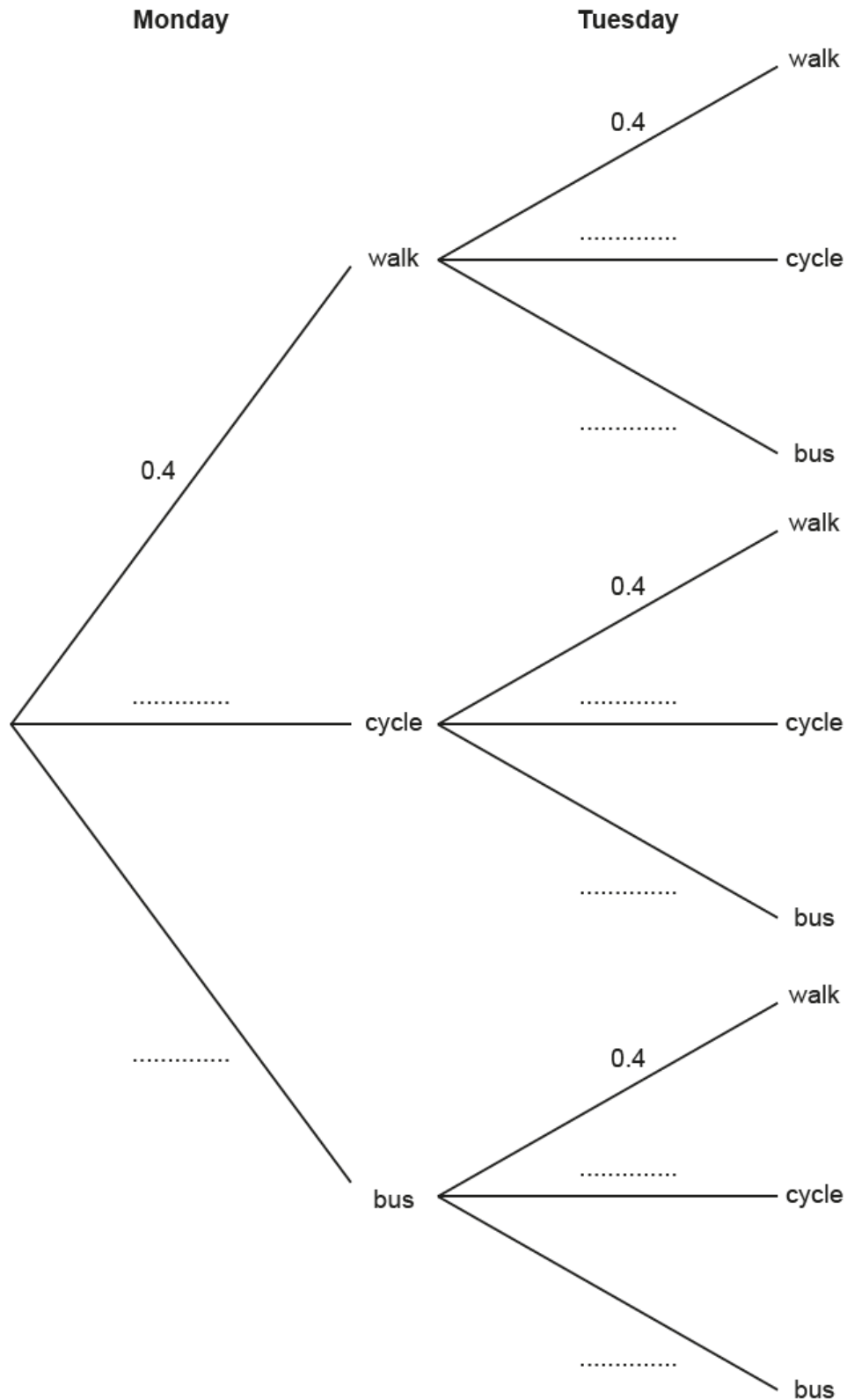(b) Show that the spinner could not have 15 edges. [2]

7. June/2022/Paper_J560/03/No.20

Reece travels to school by either walking, cycling or using a bus.
The probability that Reece walks is always 0.4.
The probability that Reece cycles is always 0.55.

(a) Complete the tree diagram for Monday and Tuesday.

Monday   **Tuesday**

walk

0.4 ————— walk

.... ————— cycle

.... ————— bus

0.4 ————— walk

walk

0.4 ————— cycle

.... ————— cycle

.... ————— bus

.... ————— cycle

cycle

0.4 ————— walk

.... ————— cycle

.... ————— bus

.... ————— bus

bus

0.4 ————— walk

.... ————— cycle

.... ————— bus

[3]

(b) Show that the probability that Reece travels to school by the same method on Monday and Tuesday is 0.465. **[3]**