AQA – Probability – GCSE Statistics – 2019

1. June/2019/Paper_1F/No.4

A **biased** dice is rolled 100 times.

The number 4 appears 50 times.

Estimate the probability that a 4 will appear on the next roll.

Circle your answer.

[1 mark]

$\frac{4}{6}$ $\frac{1}{6}$ $\frac{4}{50}$ $\frac{1}{2}$

2. June/2019/Paper_1F/No.8

Two ordinary fair dice are rolled and their scores are added to make a total.

(a) Complete the sample space diagram below to show all the possible totals.

[2 marks]

Score on first dice

Score on second dice	**+**	**1**	**2**	**3**	**4**	**5**	**6**
	1	2					
	2		4				8
	3						
	4						
	5			8			
	6						

(b) Using your diagram, or otherwise, work out

(b) (i) the probability of scoring a total of 4

[2 marks]

Answer _____

(b) (ii) the probability of scoring **more** on the first dice than on the second dice.

[2 marks]

Answer _____

3. June/2019/Paper_1H/No.4

A and B are events with

P(A) = 0.5

P(A and B) = 0.3

Circle the value of P(B | A).

[1 mark]

0.15 0.2 0.6 0.8

4. June/2019/Paper_1H/No.9

An online retailer wants to estimate the probability of an order being delivered by the following day.

The retailer tracks a sample of orders made each week during **February 2019**.

	Week 1	**Week 2**	**Week 3**	**Week 4**
Number of orders sampled	740	815	795	840
Number of these orders delivered by the following day	647	752	691	745

(a) (i) Use the data to find the best possible estimate of the probability of an order being delivered by the following day.

[2 marks]

Answer _____

(a) (ii) What could the retailer have done to get a more reliable estimate of this probability?

[1 mark]

(b) In **February 2018** the retailer delivered 5 out of every 6 orders by the following day.

Discuss whether the company was likely to have been more successful at delivering orders by the following day in **February 2019** or in **February 2018**.

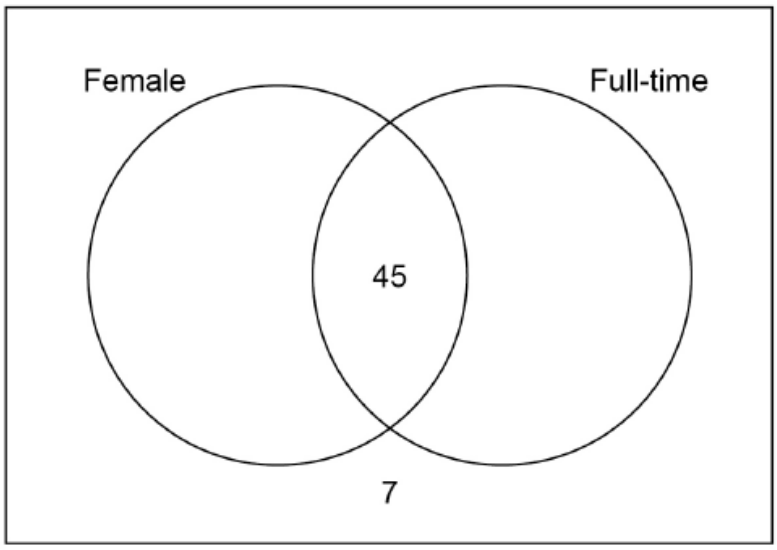
Give a reason for your answer.

[1 mark]

5. June/2019/Paper_1H/No.10

An IT company employs male and female workers who work either full-time or part-time.

The Venn diagram shows some information about the number of workers.



(a) The company employs a total of 160 workers.

$\frac{3}{4}$ of all workers are full-time.

Complete the Venn diagram.

[2 marks]

(b) The manager wants to ask a sample of workers how they feel about changes to the working day.

Declan suggests asking all workers that are at work one Friday morning.

Explain why this is likely to give an unrepresentative sample of all the company's workers.

[1 mark]

(c) Instead, the manager decides that the sample should be **stratified** by gender and type of employment (full-time or part-time).

Work out how many **full-time female** workers there should be in a sample of size 50

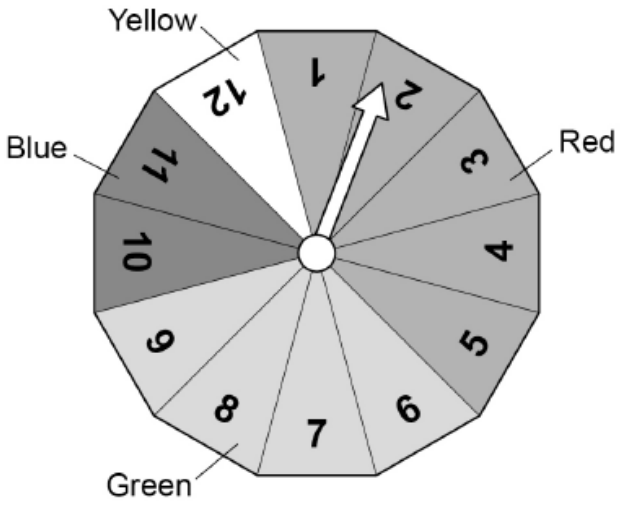
[2 marks]

Answer _____

6. June/2019/Paper_2F/No.6

The fair spinner shown has 12 equal sections.

The arrow is spun once.



(a) Work out the probability that the arrow stops on red or blue.

[2 marks]

Answer _____

(b) Work out the probability that the arrow does **not** stop on yellow.

[2 marks]

Answer _____

7. June/2019/Paper_2F/No.12

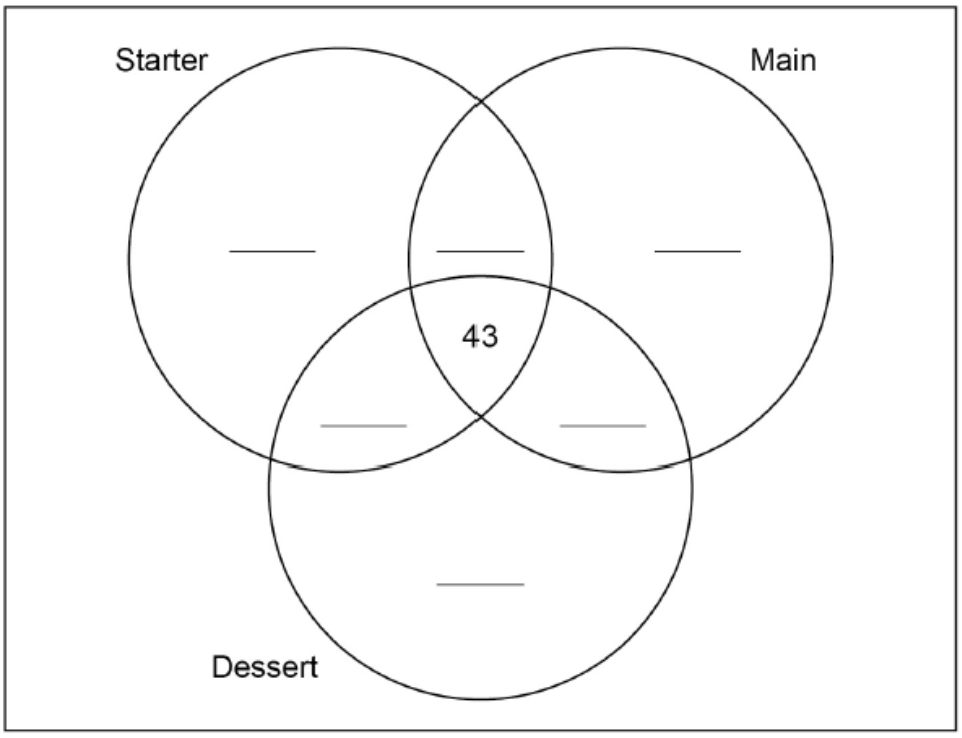
A restaurant serves three courses, starters, mains and desserts.

The manager records the choices of 100 people.

- 43 people had all 3 courses.
- 17 had **only** a starter and a main.
- 22 had **only** a main course and a dessert.
- The remaining people **only** had a main.

(a) Write the **six** missing numbers in the Venn diagram to show this information.

[4 marks]



(b) One of the people who did not have a starter was chosen at random.

What is the probability that this person had a dessert?

[2 marks]

Answer _____

8. June/2019/Paper_2H/No.7

Gareth has a washing machine and a dishwasher.

W is the event that his washing machine breaks down next year.

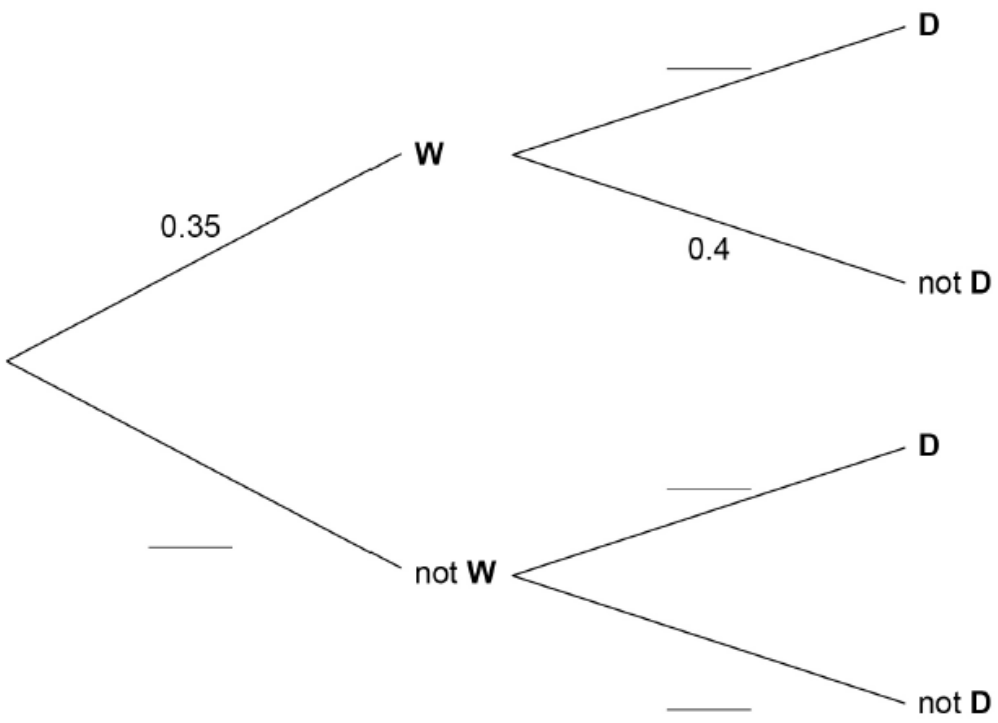
D is the event that his dishwasher breaks down next year.

Assume that the events **W** and **D** are independent.

(a) The tree diagram shows some of the probabilities.

Complete the tree diagram.

[2 marks]



(b) Find the probability that **at least one** of these machines breaks down next year.

[3 marks]

Answer _____