



ACHIEVE ACADEMY

GCSE Maths — Foundation Tier

Probability Basics · Practice Booklet

NAME:

CLASS:

DATE:

☐ Developing

☒ Secure

☐ Greater Depth

Answer every question in the working space provided. Method marks are available for correct working even if the final answer is wrong. Check the time allowed with your tutor before you start.

Probability Basics

Total marks available: 63

● Probability Basics

Q1

[2 marks]

A bag contains 3 orange, 6 blue, 2 yellow marbles. A marble is picked at random. Find the probability that it is orange. Give your answer as a fraction in its simplest form.

Q2

[2 marks]

A bag contains 3 red, 9 blue sweets. A sweet is picked at random. Find the probability that it is blue. Give your answer as a fraction in its simplest form.

Q3

[2 marks]

A bag contains 10 purple, 2 blue, 10 white cards. A card is picked at random. Find the probability that it is purple. Give your answer as a fraction in its simplest form.

Q4

[2 marks]

A bag contains 6 purple, 10 green cards. A card is picked at random. Find the probability that it is green. Give your answer as a fraction in its simplest form.

Q5

[2 marks]

The probability that the shop is open is 0.8. Find the probability that this does not happen.

Q6

[2 marks]

A bag contains 8 yellow, 9 green, 2 blue tiles. A tile is picked at random. Find the probability that it is yellow. Give your answer as a fraction in its simplest form.

Q7

[2 marks]

The probability that it will rain tomorrow is 0.5. Find the probability that this does not happen.

Q8

[2 marks]

A bag contains 5 red, 3 green counters. A counter is picked at random. Find the probability that it is red. Give your answer as a fraction in its simplest form.

Q9

[2 marks]

The probability that it will rain tomorrow is 0.19. Find the probability that this does not happen.

Q10

[2 marks]

The probability that it will rain tomorrow is 0.94. Find the probability that this does not happen.

Q11

[2 marks]

Mia rolls a dice 50 times. She gets a six 6 times. Write down the relative frequency of getting a six, as a fraction in its simplest form.

Q12

[2 marks]

A coin is flipped 60 times. It lands on heads 40 times. Write down the relative frequency of heads, as a fraction in its simplest form.

Q13

[2 marks]

The probability that a biased spinner lands on red is $\frac{1}{10}$. The spinner is spun 240 times. Work out an estimate for the number of times it lands on red.

Q14

[2 marks]

A coin is flipped 25 times. It lands on heads 10 times. Write down the relative frequency of heads, as a fraction in its simplest form.

Q15

[2 marks]

A coin is flipped 60 times. It lands on heads 19 times. Write down the relative frequency of heads, as a fraction in its simplest form.

Q16

[2 marks]

The probability that a light bulb made in a factory is faulty is $\frac{1}{20}$. The factory makes 320 light bulbs. How many of them would you expect to be faulty?

Q17

[2 marks]

A coin is flipped 50 times. It lands on heads 32 times. Write down the relative frequency of heads, as a fraction in its simplest form.

Q18

[2 marks]

The probability that Kai wins a game of darts is $\frac{3}{5}$. He plays 80 games. How many games would you expect him to win?

Q19

[2 marks]

The probability that Kai wins a game of darts is $\frac{3}{4}$. He plays 20 games. How many games would you expect him to win?

Q20

[2 marks]

The probability that a biased spinner lands on red is $\frac{1}{4}$. The spinner is spun 76 times. Work out an estimate for the number of times it lands on red.

Q21

[2 marks]

A counter is taken at random from a bag. The probability that it is green is 0.3 and the probability that it is white is 0.05. Work out the probability that the counter is green or white.

Q22

[3 marks]

A biased spinner can land on red, blue, green or yellow. The table shows the probabilities. Landing on green and landing on yellow are equally likely. Work out the value of x .

Colour	Red	Blue	Green	Yellow
Probability	0.35	0.15	x	x

Q23

[2 marks]

A counter is taken at random from a bag. The probability that it is white is 0.25 and the probability that it is green is 0.25. Work out the probability that the counter is neither white nor green.

Q24

[3 marks]

A biased spinner can land on red, blue, green or yellow. The table shows the probabilities. Landing on green and landing on yellow are equally likely. Work out the value of x .

Colour	Red	Blue	Green	Yellow
Probability	0.25	0.15	x	x

Q25

[2 marks]

A ball is taken at random from a bag. The probability that it is red is 0.2 and the probability that it is green is 0.1. Work out the probability that the ball is neither red nor green.

Q26

[3 marks]

A biased spinner can land on red, blue, green or yellow. The table shows the probabilities. Landing on green and landing on yellow are equally likely. Work out the value of x .

Colour	Red	Blue	Green	Yellow
Probability	0.1	0.2	x	x

Q27

[2 marks]

A ball is taken at random from a bag. The probability that it is blue is 0.35 and the probability that it is white is 0.3. Work out the probability that the ball is blue or white.

Q28

[2 marks]

A marble is taken at random from a bag. The probability that it is blue is 0.15 and the probability that it is white is 0.15. Work out the probability that the marble is neither blue nor white.

Q29

[2 marks]

A marble is taken at random from a bag. The probability that it is white is 0.4 and the probability that it is red is 0.25. Work out the probability that the marble is neither white nor red.

Q30

[2 marks]

A counter is taken at random from a bag. The probability that it is green is 0.35 and the probability that it is red is 0.25. Work out the probability that the counter is green or red.