

KS3 – Basic Probability

Section A – Probability Scale

Q1 (5 marks)

Write one of these words for each probability: impossible, unlikely, even chance, likely, certain.

a) 0

b) 0.2

c) 0.5

d) 0.8

e) 1

Q2 (5 marks)

Write each probability as a number between 0 and 1.

a) Impossible

b) Certain

c) An even chance

d) A 3 in 10 chance

e) A 75% chance

Q3 (5 marks)

Decide whether each statement is impossible, unlikely, even chance, likely or certain.

- a) Rolling a 7 on an ordinary six-sided die.
- b) Rolling a number less than 7 on an ordinary six-sided die.
- c) Getting heads when a fair coin is tossed.
- d) Choosing a red card from a standard pack of playing cards.
- e) Rolling a 6 on an ordinary six-sided die.

Q4 (4 marks)

Answer these questions about the probability scale.

- a) What is the smallest possible probability?
- b) What is the largest possible probability?
- c) Can a probability be 1.3? Explain.
- d) Can a probability be -0.2? Explain.

Q5 (4 marks)

Draw a probability scale from 0 to 1. Mark and label the following probabilities on it.

- a) 0.25

- b) 0.5

c) 0.7

d) 0.9

Section B – Experimental & Theoretical Probability

Q6 (5 marks)

A fair six-sided die is rolled once.

- a) Find $P(\text{rolling a 4})$.
- b) Find $P(\text{rolling an even number})$.
- c) Find $P(\text{rolling a number greater than 4})$.
- d) Find $P(\text{not rolling a 6})$.
- e) Find $P(\text{rolling a number less than 7})$.

Q7 (5 marks)

A bag contains 5 red counters, 3 blue counters and 2 green counters. One counter is chosen at random.

- a) How many counters are there altogether?
- b) Find $P(\text{red})$.
- c) Find $P(\text{blue})$.
- d) Find $P(\text{green})$.

e) Find $P(\text{not green})$.

Q8 (4 marks)

A spinner has 8 equal sections: 3 red, 2 blue, 2 yellow and 1 green.

a) Find $P(\text{red})$.

b) Find $P(\text{blue})$.

c) Find $P(\text{yellow or green})$.

d) Find $P(\text{not red})$.

Q9 (5 marks)

A fair coin is tossed 80 times. It lands on heads 46 times.

a) How many times does it land on tails?

b) Find the experimental probability of heads.

c) Find the experimental probability of tails.

d) What is the theoretical probability of heads?

e) Give one reason why the experimental probability is not exactly equal to the theoretical probability.

Q10 (5 marks)

A six-sided die is rolled 120 times. The results are shown in the table.

Outcome	1	2	3	4	5	6
Frequency	18	21	17	23	19	22

a) How many times was a 6 rolled?

b) Find the experimental probability of rolling a 3.

c) Find the experimental probability of rolling an even number.

d) What is the theoretical probability of rolling a 3?

e) Which result occurred most often?

Q11 (4 marks)

A spinner is spun 200 times and lands on blue 58 times.

a) Find the experimental probability of blue.

b) If the theoretical probability of blue is 0.3, how many blue results would you expect in 200 spins?

c) Compare the experimental number of blue results with the expected number.

d) Explain why the two numbers do not have to be exactly the same.

Challenge

Q12 (5 marks)

A bag contains only red, blue and yellow counters. The probability of choosing red is 0.35 and the probability of choosing blue is 0.4.

a) Find the probability of choosing yellow.

b) Which colour is most likely to be chosen?

c) Which colour is least likely to be chosen?

d) If there are 20 counters altogether, how many would you expect to be red?

e) How many would you expect to be yellow?

Total: ____ / 56

Percentage: ____%