



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

✓ 3/11

Q1 · ● Developing · 2 marks

METHOD

$$P(\text{orange}) = 3/11$$

✓ 3/4

Q2 · ● Developing · 2 marks

METHOD

$$P(\text{blue}) = 9/12 = 3/4$$

✓ 5/11

Q3 · ● Developing · 2 marks

METHOD

$$P(\text{purple}) = 10/22 = 5/11$$

✓ 5/8

Q4 · ● Developing · 2 marks

METHOD

$$P(\text{green}) = 10/16 = 5/8$$

✓ 0.2

Q5 · ● Developing · 2 marks

METHOD

$$P(\text{not happen}) = 1 - 0.8 = 0.2$$

✓ 8/19

Q6 · ● Developing · 2 marks

METHOD

$$P(\text{yellow}) = 8/19$$

✓0.5

Q7 · ● Developing · 2 marks

METHOD

$$P(\text{not happen}) = 1 - 0.5 = 0.5$$

✓5/8

Q8 · ● Developing · 2 marks

METHOD

$$P(\text{red}) = 5/8$$

✓0.81

Q9 · ● Developing · 2 marks

METHOD

$$P(\text{not happen}) = 1 - 0.19 = 0.81$$

✓0.06

Q10 · ● Developing · 2 marks

METHOD

$$P(\text{not happen}) = 1 - 0.94 = 0.06$$

✓3/25

Q11 · ● Secure · 2 marks

METHOD

$$\text{Relative frequency} = 6/50 = 3/25$$

✓2/3

Q12 · ● Secure · 2 marks

METHOD

$$\text{Relative frequency} = 40/60 = 2/3$$

✓24

Q13 · ● Secure · 2 marks

METHOD

Expected number = $240 \times 1/10 = 24$

✓2/5

Q14 · ● Secure · 2 marks

METHOD

Relative frequency = $10/25 = 2/5$

✓19/60

Q15 · ● Secure · 2 marks

METHOD

Relative frequency = $19/60$

✓16

Q16 · ● Secure · 2 marks

METHOD

Expected number = $320 \times 1/20 = 16$

✓16/25

Q17 · ● Secure · 2 marks

METHOD

Relative frequency = $32/50 = 16/25$

✓48

Q18 · ● Secure · 2 marks

METHOD

Expected number = $80 \times 3/5 = 48$

✓15

Q19 · ● Secure · 2 marks

METHOD

$$\text{Expected number} = 20 \times \frac{3}{4} = 15$$

✓19

Q20 · ● Secure · 2 marks

METHOD

$$\text{Expected number} = 76 \times \frac{1}{4} = 19$$

✓0.35

Q21 · ● Greater Depth · 2 marks

METHOD

$$P(\text{green or white}) = 0.3 + 0.05 = 0.35$$

✓ $x = 0.25$

Q22 · ● Greater Depth · 3 marks

METHOD

$$2x = 1 - (0.35 + 0.15) = 0.5$$

$$x = 0.5 \div 2 = 0.25$$

✓0.5

Q23 · ● Greater Depth · 2 marks

METHOD

$$P(\text{white or green}) = 0.25 + 0.25 = 0.5$$

$$P(\text{neither}) = 1 - 0.5 = 0.5$$

✓ $x = 0.3$

Q24 · ● Greater Depth · 3 marks

METHOD

$$2x = 1 - (0.25 + 0.15) = 0.6$$

$$x = 0.6 \div 2 = 0.3$$

✓0.7

Q25 · ● Greater Depth · 2 marks

METHOD

$$P(\text{red or green}) = 0.2 + 0.1 = 0.3$$

$$P(\text{neither}) = 1 - 0.3 = 0.7$$

✓ $x = 0.35$

Q26 · ● Greater Depth · 3 marks

METHOD

$$2x = 1 - (0.1 + 0.2) = 0.7$$

$$x = 0.7 \div 2 = 0.35$$

✓0.65

Q27 · ● Greater Depth · 2 marks

METHOD

$$P(\text{blue or white}) = 0.35 + 0.3 = 0.65$$

✓0.7

Q28 · ● Greater Depth · 2 marks

METHOD

$$P(\text{blue or white}) = 0.15 + 0.15 = 0.3$$

$$P(\text{neither}) = 1 - 0.3 = 0.7$$

✓0.35

Q29 · ● Greater Depth · 2 marks

METHOD

$$P(\text{white or red}) = 0.4 + 0.25 = 0.65$$

$$P(\text{neither}) = 1 - 0.65 = 0.35$$

✓ 0.6

Q30 · ● Greater Depth · 2 marks

METHOD

$$P(\text{green or red}) = 0.35 + 0.25 = 0.6$$