NON-CALC F · MARK SCHEME

GCSE Mathematics · Foundation Tier

40 marks · 45 minutes · Non-calculator

M method **A** accuracy (depends on M) **B** independent **P** process **C** communication
oe or equivalent cao correct answer only ft follow through Accept any correct, fully justified method.

Question 1

Ordering decimals · N1 · Number · AO1 · 1 mark

QN	ANSWER	MARK	GUIDANCE
1	**0.065, 0.56, 0.6, 0.605**	**B1**	cao

Question 2

Function machines · A7 · Algebra · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
2(a)	**14**	**B1**	cao
2(b)	**11**	**B1**	cao. Accept (29 + 4) ÷ 3 = 11

Question 3

Prime factors and HCF · N4 · Number · AO1 · 3 marks

QN	ANSWER	MARK	GUIDANCE
3(a)	**2 × 2 × 3 × 5**	**M1**	For a complete factor tree or repeated division, or 2, 2, 3, 5 listed
		A1	Accept $2^2 \times 3 \times 5$. Do not accept 2 + 2 + 3 + 5 or a list without × signs
3(b)	**12**	**B1**	cao

Question 4

Coordinates and midpoints · A8 · Algebra · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
4(a)	**(–3, 2)**	**B1**	cao
4(b)	**(1, –1)**	**B1**	cao

Question 5

Pie charts · S2 · Statistics · AO2 · 2 marks

QN	ANSWER	MARK	GUIDANCE
5	30	M1	For $\frac{150}{360} \times 72$ oe, or $360 \div 72$ (= 5) and $150 \div 5$
		A1	cao

Question 6

Transformations · G7 · Geometry & measures · AO1 · 3 marks

QN	ANSWER	MARK	GUIDANCE
6(a)	**Triangle at (–1, 1), (–4, 1), (–1, 3)**	B1	cao
6(b)	**Rotation 180° about (0, 0)**	B2	B1 for rotation. B2 for rotation with 180° and centre (0, 0) or O. Do not award marks if more than one transformation is given. Accept enlargement scale factor –1 centre (0, 0) for B2

Question 7

Error intervals · N15 · Number · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
7	**$163.5 \leqslant h < 164.5$**	B2	B1 for 163.5 and 164.5 seen, or one correct inequality

Question 8

Forming and solving equations · A21 · A17 · Algebra · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
8	11	P1	For forming an equation, e.g. $2(2x + 3) + 2(x + 5) = 40$ or $6x + 16 = 40$
		P1	For solving to get $x = 4$
		A1	cao. Sides are 11 cm and 9 cm

Question 9

Recipes · R3 · R5 · Ratio & proportion · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
9	12	P1	For using one ingredient correctly, e.g. 300 ÷ 20 = 15, or 3 eggs make 12, or 1000 ÷ 50 = 20
		P1	For a correct comparison of all three ingredients (15, 12 and 20 oe)
		A1	cao

Question 10

Index laws · N7 · Number · AO1/2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
10(a)	5^7	B1	cao
10(b)	2^6	B1	cao
10(c)	No, with reason	C1	e.g. the base stays as 3 so the answer is 3^6, or $3^6 = 729$ but 9^6 is much bigger

Question 11

Venn diagrams · P6 · Probability · AO1/2 · 2 marks

QN	ANSWER	MARK	GUIDANCE
11(a)	**2, 6**	**B1**	cao
11(b)	$\frac{3}{12}$ **oe**	**B1**	Accept $\frac{1}{4}$, 0.25 or 25%

Question 12

Best buys · R10 · N2 · Ratio & proportion · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
12	**Large pack (38p each compared with 40p)**	**P1**	For a correct first step, e.g. 240 ÷ 6 (= 40) or 380 ÷ 10 (= 38), or 30 yoghurts cost £12 and £11.40
		P1	For a complete method giving comparable values for both packs
		C1	For 'Large pack' supported by correct figures

Question 13

Expanding double brackets · A4 · Algebra · AO2 · 2 marks

QN	ANSWER	MARK	GUIDANCE
13	**Fully correct working**	**M1**	For 4 terms with at least 3 correct, e.g. $x^2 + 5x + 3x + 15$
		A1	For $x^2 + 8x + 15 - 8x = x^2 + 15$ with no errors seen

Question 14

Speed · R11 · N13 · Ratio & proportion · AO1 · 3 marks

QN	ANSWER	MARK	GUIDANCE
14	60	M1	For 2 hours 30 minutes = 2.5 hours, or 150 minutes
		M1	For 150 ÷ 2.5, or 150 ÷ 150 × 60
		A1	cao. 150 ÷ 2.3 or 150 ÷ 2.30 scores M0 M1 A0

Question 15

Semicircle perimeter · G17 · G9 · Geometry & measures · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
15	26 + 3π	P1	For the arc length, e.g. π × 6 ÷ 2 (= 3π)
		P1	For 10 + 10 + 6 (= 26) added to an arc length. Do not include the dashed line
		A1	Accept 26 + 3π oe, e.g. 3π + 26

Question 16

Mean from a frequency table · S4 · Statistics · AO2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
16	No, with mean 1.45	M1	For finding total goals, e.g. 0 × 4 + 1 × 6 + 2 × 7 + 3 × 3 (= 29)
		M1	For 29 ÷ 20
		C1	For 'No' with 1.45, or 29 < 30 (total needed for a mean of 1.5)

Paper overview

Q	TOPIC	SPEC REF	STRAND	AO	MARKS
1	Ordering decimals	N1	Number	AO1	1
2	Function machines	A7	Algebra	AO1	2
3	Prime factors and HCF	N4	Number	AO1	3
4	Coordinates and midpoints	A8	Algebra	AO1	2
5	Pie charts	S2	Statistics	AO2	2
6	Transformations	G7	Geometry & measures	AO1	3
7	Error intervals	N15	Number	AO1	2
8	Forming and solving equations	A21 · A17	Algebra	AO3	3
9	Recipes	R3 · R5	Ratio & proportion	AO3	3
10	Index laws	N7	Number	AO1/2	3
11	Venn diagrams	P6	Probability	AO1/2	2
12	Best buys	R10 · N2	Ratio & proportion	AO3	3
13	Expanding double brackets	A4	Algebra	AO2	2
14	Speed	R11 · N13	Ratio & proportion	AO1	3
15	Semicircle perimeter	G17 · G9	Geometry & measures	AO3	3
16	Mean from a frequency table	S4	Statistics	AO2	3
Total					**40**

Marks by strand

Number	**9 marks (22%)**
Algebra	**9 marks (22%)**
Ratio & proportion	**9 marks (22%)**
Geometry & measures	**6 marks (15%)**
Probability	**2 marks (5%)**
Statistics	**5 marks (12%)**

Marks by assessment objective

AO1	Standard techniques	**19 marks (48%)**
AO2	Reasoning	**9 marks (22%)**
AO3	Problem solving	**12 marks (30%)**