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

Order of operations · N3 · Number · AO1 · 1 mark

QN	ANSWER	MARK	GUIDANCE
1	19	B1	cao

Question 2

Fractions and decimals · N10 · Number · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
2(a)	0.375	B1	cao
2(b)	$\frac{7}{100}$	B1	cao

Question 3

Simplify and factorise · A4 · Algebra · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
3(a)	$12pq$	B1	Accept $12qp$
3(b)	$3(2x + 5)$	B1	cao

Question 4

Map scales · G15 · R2 · Geometry & measures · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
4(a)	35	B1	cao
4(b)	2.4	B1	cao

Question 5

Pictograms · S2 · Statistics · AO1/2 · 2 marks

QN	ANSWER	MARK	GUIDANCE
5(a)	**20**	**B1**	cao
5(b)	$\frac{3}{4}$ **of a circle drawn for Thursday**	**B1**	Accept a clear three-quarter circle

Question 6

Ratio and fractions · R4 · R8 · Ratio & proportion · AO1/2 · 2 marks

QN	ANSWER	MARK	GUIDANCE
6(a)	**3 : 4**	**B1**	cao
6(b)	$\frac{18}{42}$ **oe**	**B1**	Accept $\frac{3}{7}$

Question 7

Nets of 3D shapes · G12 · Geometry & measures · AO1/2 · 2 marks

QN	ANSWER	MARK	GUIDANCE
7(a)	**Triangular prism**	**B1**	cao
7(b)	**Yes, with reason**	**C1**	e.g. 3 edges on each triangle and 3 edges joining them, 3 + 3 + 3 = 9

Question 8

Percentage change · R9 · Ratio & proportion · AO2 · 2 marks

QN	ANSWER	MARK	GUIDANCE
8	**No, it is 12%**	**M1**	For $\frac{30}{250} \times 100$ oe, or 10% of 250 = 25 and 1% = 2.5
		C1	For 'No' with 12% (or 30% would be an increase of £75)

Question 9

Sample space diagrams · P7 · Probability · AO1/2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
9(a)	**Row 1: 7 Row 2: 6, 10 Row 3: 5, 9, 11**	**B1**	All five missing totals correct
9(b)	$\frac{2}{12}$ **oe**	**B1**	ft their table. Accept $\frac{1}{6}$
9(c)	$\frac{4}{12}$ **oe**	**B1**	ft their table. Accept $\frac{1}{3}$

Question 10

Double brackets and quadratics · A4 · Algebra · AO1 · 4 marks

QN	ANSWER	MARK	GUIDANCE
10(a)	$x^2 + 2x - 8$	**M1**	For 4 terms with 3 correct, e.g. $x^2 - 2x + 4x - 8$
		A1	cao
10(b)	$(x + 3)(x + 4)$	**M1**	For $(x \pm 3)(x \pm 4)$
		A1	cao

Question 11

Exact trig values · G21 · G20 · Geometry & measures · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
11	9	M1	For $18 \times \sin 30°$ or $18 \times \frac{1}{2}$
		A1	cao

Question 12

Angles in a triangle · A21 · G3 · Algebra · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
12	105	P1	For $x + 2x + 3x + 30 = 180$ oe
		P1	For $x = 25$
		A1	cao

Question 13

Scatter graphs · S6 · Statistics · AO2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
13(a)	Positive	B1	Accept 'positive correlation'. Ignore 'strong' or 'weak'
13(b)	66	M1	For a line of best fit drawn, or a clear reading at 6 hours
		A1	Accept any value from 60 to 72

Question 14

Fractions of amounts · N8 · N12 · Number · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
14	60	P1	For $\frac{1}{3} + \frac{1}{4} = \frac{7}{12}$ oe
		P1	For $\frac{5}{12}$ = £25, or 25 ÷ 5 × 12
		A1	cao

Question 15

Highest common factor · N4 · Number · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
15	12	P1	For listing factors of 24 and 36, or prime factors 2 × 2 × 2 × 3 and 2 × 2 × 3 × 3
		P1	For identifying 12 as the HCF
		A1	cao. Each bracelet has 2 red and 3 blue beads

Question 16

Ratio problem · R5 · N2 · Ratio & proportion · AO3 · 4 marks

QN	ANSWER	MARK	GUIDANCE
16	31	P1	For 4 ÷ 5 (= 0.8) or 1.6 litres of red or 2.4 litres of white
		P1	For 1.6 ÷ 0.5 rounded up to 4 tins, or 2.4 rounded up to 3 tins
		P1	For 4 × 4 (= 16) and 3 × 5 (= 15)
		A1	cao

Paper overview

Q	TOPIC	SPEC REF	STRAND	AO	MARKS
1	Order of operations	N3	Number	AO1	1
2	Fractions and decimals	N10	Number	AO1	2
3	Simplify and factorise	A4	Algebra	AO1	2
4	Map scales	G15 · R2	Geometry & measures	AO1	2
5	Pictograms	S2	Statistics	AO1/2	2
6	Ratio and fractions	R4 · R8	Ratio & proportion	AO1/2	2
7	Nets of 3D shapes	G12	Geometry & measures	AO1/2	2
8	Percentage change	R9	Ratio & proportion	AO2	2
9	Sample space diagrams	P7	Probability	AO1/2	3
10	Double brackets and quadratics	A4	Algebra	AO1	4
11	Exact trig values	G21 · G20	Geometry & measures	AO1	2
12	Angles in a triangle	A21 · G3	Algebra	AO3	3
13	Scatter graphs	S6	Statistics	AO2	3
14	Fractions of amounts	N8 · N12	Number	AO3	3
15	Highest common factor	N4	Number	AO3	3
16	Ratio problem	R5 · N2	Ratio & proportion	AO3	4
Total					**40**

Marks by strand

Number	**9 marks (22%)**
Algebra	**9 marks (22%)**
Ratio & proportion	**8 marks (20%)**
Geometry & measures	**6 marks (15%)**
Probability	**3 marks (8%)**
Statistics	**5 marks (12%)**

Marks by assessment objective

AO1	Standard techniques	**18 marks (45%)**
AO2	Reasoning	**9 marks (22%)**
AO3	Problem solving	**13 marks (32%)**