CALC G · MARK SCHEME

GCSE Mathematics · Foundation Tier

40 marks · 45 minutes · 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

Fractions to decimals · N10 · Number · AO1 · 1 mark

QN	ANSWER	MARK	GUIDANCE
1	0.875	B1	cao

Question 2

Using a calculator · N2 · N15 · Number · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
2	4.8	M1	For 9.42 or 1.96 seen, or 4.806...
		A1	cao

Question 3

Expanding brackets · A4 · Algebra · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
3	$3x - 12$	M1	For $8x - 12$ seen
		A1	cao

Question 4

Powers and roots · N6 · N7 · Number · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
4	9.225	M1	For 15.625 or 6.4 seen
		A1	cao

Question 5

Exchange rates · R10 · N13 · Ratio & proportion · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
5	Spain, by £1.52	P1	For 98 ÷ 1.16 (= 84.48...) or 86 × 1.16 (= 99.76)
		P1	For a correct comparison, e.g. 86 – 84.48
		A1	For 'Spain' and £1.52 (accept £1.51 to £1.52). Spain with €1.76 only scores P1 P1 A0

Question 6

Lowest common multiple · N4 · Number · AO3 · 2 marks

QN	ANSWER	MARK	GUIDANCE
6	09:36	M1	For listing multiples of 12 and 18, or finding the LCM 36
		A1	Accept 9:36 am or 9:36. An answer of 36 minutes only scores M1 A0

Question 7

Distance–time graph · A14 · R11 · Algebra · AO1/2 · 4 marks

QN	ANSWER	MARK	GUIDANCE
7(a)	9	B1	cao
7(b)	45	B1	cao
7(c)	12	M1	For 18 ÷ 1.5 or 18 km in 90 minutes
		A1	cao

Question 8

Trigonometry · G20 · Geometry & measures · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
8	7.39	M1	For $\sin 38 = \frac{x}{12}$ or $12 \times \sin 38$
		A1	Accept 7.38 to 7.39

Question 9

Reverse percentages · R9 · Ratio & proportion · AO2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
9(a)	**Explanation**	C1	e.g. the 20% is of the original price, not the sale price, or she should divide by 0.8
9(b)	**73**	M1	For 58.40 ÷ 0.8 or 58.40 ÷ 80 × 100
		A1	cao

Question 10

Scatter graphs · S6 · Statistics · AO1/2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
10(a)	**Positive**	B1	Accept 'strong positive'. Do not accept a description of the relationship only
10(b)	**56**	M1	For a single straight line of best fit drawn, or a reading from 5.5 hours
		A1	Accept 52 to 60

Question 11

Venn diagrams · P6 · P3 · Probability · AO1/2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
11(a)	**17, 6, 9, 8**	B2	F only 17, both 6, T only 9, outside 8. B1 for 6 in the overlap with either 17 or 9 correct
11(b)	$\frac{8}{40}$ **oe**	B1	Accept $\frac{1}{5}$ or 0.2; ft from their Venn diagram

Question 12

Fibonacci-type sequences · A24 · A21 · Algebra · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
12	8, 11	M1	For writing the terms as 3, a, 3 + a, 3 + 2a (or trial with a check)
		M1	For 3 + 2a = 19, or a complete trial giving 19
		A1	For 8 and 11 in the correct positions

Question 13

Cylinder volume · G17 · N13 · Geometry & measures · AO1/3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
13(a)	754	M1	For $\pi \times 4^2 \times 15$
		A1	Accept 753 or 754
13(b)	4	B1	ft their (a) ÷ 180 rounded down

Question 14

Inverse proportion · R10 · R13 · Ratio & proportion · AO1/2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
14(a)	10	M1	For 6 × 15 (= 90 days of work) or $15 \times \frac{6}{9}$
		A1	cao
14(b)	Assumption	C1	e.g. all decorators work at the same rate, or they work the same hours each day

Question 15

Area problem · G16 · N13 · Geometry & measures · AO3 · 4 marks

QN	ANSWER	MARK	GUIDANCE
15	225	P1	For 6.4 × 3.5 (= 22.4 m²) and 0.4 × 0.4 (= 0.16 m²), or 640 ÷ 40 (= 16) and 350 ÷ 40 (= 8.75)
		P1	For 22.4 ÷ 0.16 (= 140 tiles), or 16 × 9 (= 144 tiles)
		P1	For their number of tiles ÷ 12 rounded up (12 packs)
		A1	cao

Paper overview

Q	TOPIC	SPEC REF	STRAND	AO	MARKS
1	Fractions to decimals	N10	Number	AO1	1
2	Using a calculator	N2 · N15	Number	AO1	2
3	Expanding brackets	A4	Algebra	AO1	2
4	Powers and roots	N6 · N7	Number	AO1	2
5	Exchange rates	R10 · N13	Ratio & proportion	AO3	3
6	Lowest common multiple	N4	Number	AO3	2
7	Distance–time graph	A14 · R11	Algebra	AO1/2	4
8	Trigonometry	G20	Geometry & measures	AO1	2
9	Reverse percentages	R9	Ratio & proportion	AO2	3
10	Scatter graphs	S6	Statistics	AO1/2	3
11	Venn diagrams	P6 · P3	Probability	AO1/2	3
12	Fibonacci-type sequences	A24 · A21	Algebra	AO3	3
13	Cylinder volume	G17 · N13	Geometry & measures	AO1/3	3
14	Inverse proportion	R10 · R13	Ratio & proportion	AO1/2	3
15	Area problem	G16 · N13	Geometry & measures	AO3	4
Total					**40**

Marks by strand

Number	**9 marks (22%)**
Algebra	**9 marks (22%)**
Ratio & proportion	**9 marks (22%)**
Geometry & measures	**7 marks (18%)**
Probability	**3 marks (8%)**
Statistics	**3 marks (8%)**

Marks by assessment objective

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