CALC I · 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

Ordering decimals · N1 · Number · AO1 · 1 mark

QN	ANSWER	MARK	GUIDANCE
1	**0.065, 0.56, 0.6, 0.605**	**B1**	cao. Accept in reverse order only if the largest is clearly labelled first

Question 2

Percentage of an amount · R9 · Ratio & proportion · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
2	**11.20**	**M1**	For 64 × 0.175 or 64 ÷ 100 × 17.5
		A1	Accept 11.2

Question 3

Factorise and expand · A4 · Algebra · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
3(a)	**$3(2x + 5)$**	**B1**	cao
3(b)	**$x^2 - 7x$**	**B1**	cao

Question 4

Time · N13 · N2 · Number · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
4	**10:10 pm**	**M1**	For 22:10 or a correct method adding 2 h 25 min
		A1	Accept 10.10 pm or ten past ten at night

Question 5

Pie charts · S2 · Statistics · AO1 · 3 marks

QN	ANSWER	MARK	GUIDANCE
5	Correct pie chart	M1	For 360 ÷ 60 (= 6°) or one correct angle
		A1	For all angles correct: walk 132°, bus 108°, car 90°, cycle 30°
		A1	For a fully correct, labelled pie chart (angles ± 2°)

Question 6

Solve linear equations · A17 · Algebra · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
6	–3	M1	For a correct first step, e.g. $7 = 5x + 22$ or $-15 = 5x$
		A1	cao

Question 7

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

QN	ANSWER	MARK	GUIDANCE
7	32.0	M1	For $\tan y = \frac{5}{8}$ or $\tan^{-1}(5 \div 8)$
		A1	Accept 32 to 32.01

Question 8

Quadratic sequences · A24 · A23 · Algebra · AO1/2 · 2 marks

QN	ANSWER	MARK	GUIDANCE
8(a)	42	B1	cao
8(b)	Yes, with reason	C1	e.g. the sequence continues 42, 56, 72, 90, 110, or the terms are $n(n + 1)$ and $10 \times 11 = 110$

Question 9

Probability · P4 · A17 · Probability · AO2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
9	0.3	M1	For 1 – 0.35 – 0.2 (= 0.45)
		M1	For 0.45 ÷ 3 (= 0.15) or $3x = 0.45$
		A1	cao. 0.15 only scores M1 M1 A0

Question 10

Direct proportion · R10 · R5 · Ratio & proportion · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
10	20	P1	For a method with one ingredient, e.g. 400 ÷ 120 × 8 (= 26.6...) or 5 ÷ 2 × 8 (= 20)
		P1	For a method for all three ingredients, e.g. 26.6..., 20 and 26.6...
		A1	cao

Question 11

Standard form · N9 · Number · AO1 · 3 marks

QN	ANSWER	MARK	GUIDANCE
11(a)	4.2×10^{-4}	B1	cao
11(b)	3.5×10^{5}	M1	For 350 000 or 3.5 seen, or 35×10^{4}
		A1	cao

Question 12

Volume of a prism · G16 · A17 · Geometry & measures · AO2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
12	15	M1	For the area of the triangle, $\frac{1}{2} \times 6 \times 4$ (= 12)
		M1	For 180 ÷ 12
		A1	cao. 180 ÷ 24 (= 7.5) scores M0 M1 A0

Question 13

Highest common factor · N4 · Number · AO3 · 2 marks

QN	ANSWER	MARK	GUIDANCE
13	12	M1	For listing factors of both, or prime factors $2^2 \times 3 \times 7$ and $2^3 \times 3 \times 5$
		A1	cao

Question 14

Forming and solving equations · A21 · A17 · Algebra · AO2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
14	32	M1	For expressions $x + 3$ and $2(x + 3)$
		M1	For $x + x + 3 + 2x + 6 = 61$ or $4x + 9 = 61$, leading to $x = 13$
		A1	cao. 13 (Ali's age) only scores M1 M1 A0

Question 15

Comparing interest · R16 · R9 · Ratio & proportion · AO3 · 4 marks

QN	ANSWER	MARK	GUIDANCE
15	**A, by £9.69**	**P1**	For 5000 × 0.03 × 5 (= 750) or 5750
		P1	For 5000 × 1.028^5 or a year-by-year method
		A1	For 5750 and 5740.31 (accept 5740 to 5741)
		C1	For 'Account A' by £9.69 (accept £9 to £10 from correct working)

Question 16

Pythagoras in context · G20 · N2 · Geometry & measures · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
16	**4.80**	**P1**	For $1.2^2 + 0.5^2$ (= 1.69)
		P1	For $\sqrt{1.69}$ (= 1.3) and adding all three sides (= 3 m)
		A1	Accept 4.8

Paper overview

Q	TOPIC	SPEC REF	STRAND	AO	MARKS
1	Ordering decimals	N1	Number	AO1	1
2	Percentage of an amount	R9	Ratio & proportion	AO1	2
3	Factorise and expand	A4	Algebra	AO1	2
4	Time	N13 · N2	Number	AO1	2
5	Pie charts	S2	Statistics	AO1	3
6	Solve linear equations	A17	Algebra	AO1	2
7	Trigonometry	G20	Geometry & measures	AO1	2
8	Quadratic sequences	A24 · A23	Algebra	AO1/2	2
9	Probability	P4 · A17	Probability	AO2	3
10	Direct proportion	R10 · R5	Ratio & proportion	AO3	3
11	Standard form	N9	Number	AO1	3
12	Volume of a prism	G16 · A17	Geometry & measures	AO2	3
13	Highest common factor	N4	Number	AO3	2
14	Forming and solving equations	A21 · A17	Algebra	AO2	3
15	Comparing interest	R16 · R9	Ratio & proportion	AO3	4
16	Pythagoras in context	G20 · N2	Geometry & measures	AO3	3
Total					**40**

Marks by strand

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

Marks by assessment objective

AO1	Standard techniques	**18 marks (45%)**
AO2	Reasoning	**10 marks (25%)**
AO3	Problem solving	**12 marks (30%)**