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	0.06, 0.6, 0.606, 0.66	B1	cao

Question 2

Calculator skills · N2 · N3 · Number · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
2(a)	11.39	B1	cao
2(b)	11.04	B1	cao

Question 3

Prime factors · N4 · Number · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
3	$2^2 \times 3^2 \times 7$	M1	For a correct method, e.g. a factor tree with at least two correct steps, or 2, 2, 3, 3, 7 seen
		A1	Accept $2 \times 2 \times 3 \times 3 \times 7$

Question 4

Area of a trapezium · G16 · Geometry & measures · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
4	36	M1	For $\frac{1}{2} \times (6.5 + 11.5) \times 4$
		A1	cao

Question 5

Substitution · A2 · Algebra · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
5	**28.5**	**M1**	For 4 + 9.8 × 2.5 or 24.5 seen
		A1	cao

Question 6

Pie charts · S2 · Statistics · AO1 · 3 marks

QN	ANSWER	MARK	GUIDANCE
6	**Correct pie chart**	**M1**	For 360 ÷ 72 (= 5) or one angle correct: 100°, 130°, 80°, 50°
		A1	For all four angles correct ($\pm$2°)
		C1	For a fully correct, labelled pie chart (ft their angles if M1 scored)

Question 7

Percentage change · R9 · Ratio & proportion · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
7	**No, it lost 24%**	**P1**	For 14 500 – 11 020 (= 3480)
		P1	For 3480 ÷ 14 500 × 100 or 11 020 ÷ 14 500 (= 0.76), or 25% of 14 500 (= 3625)
		C1	For 'No' with 24% (or 3480 < 3625)

Question 8

Angles in polygons · G3 · Geometry & measures · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
8	135	M1	For 360 ÷ 8 (= 45) or (8 – 2) × 180 (= 1080)
		A1	cao

Question 9

Probability tables · P4 · Probability · AO1/2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
9(a)	0.65	B1	oe
9(b)	0.3	M1	For 1 – 0.35 – 0.2 (= 0.45) and ÷ 3 (= 0.15)
		A1	oe

Question 10

Expand and factorise · A4 · Algebra · AO1 · 3 marks

QN	ANSWER	MARK	GUIDANCE
10(a)	$5x + 2$	M1	For $3x + 12$ or $2x - 10$
		A1	cao
10(b)	$x(x + 7)$	B1	cao

Question 11

Error intervals · N15 · Number · AO2 · 2 marks

QN	ANSWER	MARK	GUIDANCE
11	**14.55 ≤ L < 14.65**	**B1**	For 14.55
		B1	For 14.65

Question 12

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

QN	ANSWER	MARK	GUIDANCE
12	**Paris, by £3**	**P1**	For 145 ÷ 1.16 (= 125) or 128 × 1.16 (= 148.48)
		P1	For a correct comparison, e.g. 128 – 125 or 148.48 – 145 (= 3.48) and ÷ 1.16
		A1	For Paris and £3

Question 13

Forming and solving equations · A17 · G3 · Algebra · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
13	**76**	**P1**	For $(x + 20) + 2x + (3x – 8) = 180$
		P1	For $6x = 168$ or $x = 28$
		A1	cao

Question 14

Distance–time graphs · A14 · R11 · Algebra · AO2 · 4 marks

QN	ANSWER	MARK	GUIDANCE
14(a)	15	B1	cao
14(b)	18	M1	For 9 ÷ 30 × 60 or 9 ÷ 0.5
		A1	cao
14(c)	The journey home	C1	With reason, e.g. the line is steepest, or 15 km in 45 minutes (20 km/h)

Question 15

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

QN	ANSWER	MARK	GUIDANCE
15	7.39	M1	For 12 × sin 38°
		A1	Accept 7.38 to 7.39

Question 16

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

QN	ANSWER	MARK	GUIDANCE
16(a)	73	P1	For 58.40 ÷ 0.8 or 58.40 ÷ 80 × 100
		A1	cao
16(b)	Explanation	C1	e.g. the 20% was taken off the original price, not the sale price, so she should not find 20% of £58.40

Paper overview

Q	TOPIC	SPEC REF	STRAND	AO	MARKS
1	Ordering decimals	N1	Number	AO1	1
2	Calculator skills	N2 · N3	Number	AO1	2
3	Prime factors	N4	Number	AO1	2
4	Area of a trapezium	G16	Geometry & measures	AO1	2
5	Substitution	A2	Algebra	AO1	2
6	Pie charts	S2	Statistics	AO1	3
7	Percentage change	R9	Ratio & proportion	AO3	3
8	Angles in polygons	G3	Geometry & measures	AO1	2
9	Probability tables	P4	Probability	AO1/2	3
10	Expand and factorise	A4	Algebra	AO1	3
11	Error intervals	N15	Number	AO2	2
12	Exchange rates	R10 · N13	Ratio & proportion	AO3	3
13	Forming and solving equations	A17 · G3	Algebra	AO3	3
14	Distance–time graphs	A14 · R11	Algebra	AO2	4
15	Trigonometry	G20	Geometry & measures	AO1	2
16	Reverse percentages	R9	Ratio & proportion	AO2/3	3
Total					**40**

Marks by strand

Number	**7 marks (18%)**
Algebra	**11 marks (28%)**
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	**20 marks (50%)**
AO2	Reasoning	**9 marks (22%)**
AO3	Problem solving	**11 marks (28%)**