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

Rounding · N15 · Number · AO1 · 1 mark

QN	ANSWER	MARK	GUIDANCE
1	6.5	B1	cao

Question 2

Factors · N4 · Number · AO1 · 1 mark

QN	ANSWER	MARK	GUIDANCE
2	9 or 18	B1	Accept either

Question 3

Standard form · N9 · Number · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
3(a)	470 000	B1	cao
3(b)	3.6×10^{-4}	B1	cao

Question 4

Averages from a table · S4 · Statistics · AO1/2 · 4 marks

QN	ANSWER	MARK	GUIDANCE
4(a)	1	B1	cao
4(b)	No, the median is 1	C1	e.g. the 12th and 13th values are both 1
4(c)	1.54	M1	For 0×5 + 1×8 + 2×6 + 3×3 + 4×2 (= 37) and ÷ 24
		A1	Accept 1.5 to 1.55

Question 5

Percentage decrease · R9 · Ratio & proportion · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
5	**204**	**M1**	For 240 × 0.15 (= 36) or 240 × 0.85
		A1	cao

Question 6

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

QN	ANSWER	MARK	GUIDANCE
6(a)	**$8x - 20$**	**B1**	cao
6(b)	**$3(2y + 5)$**	**B1**	cao

Question 7

Circumference problem · G17 · N2 · Geometry & measures · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
7	**18.10**	**P1**	For π × 1.8 (= 5.65...)
		P1	For 5.65... × 3.20 (= 18.09...)
		A1	Accept 18.09 to 18.10

Question 8

Two-way tables · P6 · P3 · Probability · AO1/2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
8(a)	**Year 10 bus 12, Year 11 walk 14, Year 11 car 6, total bus 32, Year 11 total 40**	**B2**	All correct. B1 for at least 3 correct
8(b)	**$\frac{32}{80}$ oe**	**B1**	ft their table. Accept $\frac{2}{5}$, 0.4 or 40%

Question 9

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

QN	ANSWER	MARK	GUIDANCE
9	5.5	M1	For a correct step to collect terms, e.g. $4x = 22$
		A1	oe, e.g. $\frac{11}{2}$

Question 10

Average speed · R11 · N13 · Ratio & proportion · AO2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
10	106.3	M1	For a time of 1 hour 45 minutes, or 1.75 hours, or 105 minutes
		M1	For 186 ÷ 1.75 or 186 ÷ 105 × 60
		A1	Accept 106 to 106.3

Question 11

Pythagoras' theorem · G20 · Geometry & measures · AO1 · 3 marks

QN	ANSWER	MARK	GUIDANCE
11	12	M1	For $7.2^2 + 9.6^2$ (= 144)
		M1	For $\sqrt{(7.2^2 + 9.6^2)}$
		A1	cao

Question 12

Using a formula · A2 · A17 · Algebra · AO1/2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
12(a)	21.50	B1	cao
12(b)	6.5	M1	For $33.5 = 4h + 7.5$ or $(33.5 - 7.5) \div 4$
		A1	oe, e.g. 6 hours 30 minutes

Question 13

Compound and simple interest · R9 · R16 · Ratio & proportion · AO3 · 4 marks

QN	ANSWER	MARK	GUIDANCE
13	Bea (£3934 compared with £3908.77)	P1	For 3500×1.028 (= 3598) or a full year-by-year method
		P1	For 3500×1.028^4 (= 3908.77...)
		P1	For $3500 \times 0.031 \times 4$ (= 434) or 3500 + 434 (= 3934)
		C1	For 'Bea' with 3908.77 (or 3909) and 3934

Question 14

Lowest common multiple · N4 · Number · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
14	8 15 am	P1	For listing multiples of 20 and 12, e.g. 20, 40, 60 and 12, 24, 36, 48, 60, or prime factors
		P1	For finding the LCM of 60 (minutes)
		A1	Accept 08:15

Question 15

Volume and rates · G16 · R11 · Geometry & measures · AO3 · 4 marks

QN	ANSWER	MARK	GUIDANCE
15	20	P1	For $80 \times 50 \times 40$ (= 160 000 cm^3) or $80 \times 50 \times 30$ (= 120 000)
		P1	For converting to litres, e.g. 160 000 ÷ 1000 (= 160) or 120
		P1	For $\frac{3}{4}$ of 160 (= 120) and ÷ 6
		A1	cao

Paper overview

Q	TOPIC	SPEC REF	STRAND	AO	MARKS
1	Rounding	N15	Number	AO1	1
2	Factors	N4	Number	AO1	1
3	Standard form	N9	Number	AO1	2
4	Averages from a table	S4	Statistics	AO1/2	4
5	Percentage decrease	R9	Ratio & proportion	AO1	2
6	Expand and factorise	A4	Algebra	AO1	2
7	Circumference problem	G17 · N2	Geometry & measures	AO3	3
8	Two-way tables	P6 · P3	Probability	AO1/2	3
9	Solve linear equations	A17	Algebra	AO1	2
10	Average speed	R11 · N13	Ratio & proportion	AO2	3
11	Pythagoras' theorem	G20	Geometry & measures	AO1	3
12	Using a formula	A2 · A17	Algebra	AO1/2	3
13	Compound and simple interest	R9 · R16	Ratio & proportion	AO3	4
14	Lowest common multiple	N4	Number	AO3	3
15	Volume and rates	G16 · R11	Geometry & measures	AO3	4
Total					**40**

Marks by strand

Number	**7 marks (18%)**
Algebra	**7 marks (18%)**
Ratio & proportion	**11 marks (28%)**
Geometry & measures	**8 marks (20%)**
Probability	**3 marks (8%)**
Statistics	**4 marks (10%)**

Marks by assessment objective

AO1	Standard techniques	**18 marks (45%)**
AO2	Reasoning	**8 marks (20%)**
AO3	Problem solving	**14 marks (35%)**