NON-CALC G · MARK SCHEME

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

Roots and powers · N6 · Number · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
1(a)	9	B1	cao
1(b)	64	B1	cao

Question 2

Properties of quadrilaterals · G4 · Geometry & measures · AO1 · 1 mark

QN	ANSWER	MARK	GUIDANCE
2	Trapezium	B1	Accept trapezoid. Ignore spelling if clearly trapezium

Question 3

Substitution · A2 · Algebra · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
3	23	M1	For $5 \times 3 - 2 \times (-4)$ or $15 + 8$
		A1	cao. $15 - 8 = 7$ scores M0 A0

Question 4

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

QN	ANSWER	MARK	GUIDANCE
4	91	M1	For a complete method, e.g. 10% = 26 and 5% = 13 with $3 \times 26 + 13$, or 0.35×260
		A1	cao

Question 5

Stem and leaf diagrams · S3 · S4 · Statistics · AO1/2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
5(a)	**29**	**B1**	cao
5(b)	**33**	**B1**	cao
5(c)	$\frac{7}{15}$	**B1**	oe, e.g. 0.46 recurring

Question 6

Standard form · N9 · Number · AO1 · 2 marks

QN	ANSWER	MARK	GUIDANCE
6(a)	**3.4×10^4**	**B1**	cao
6(b)	**0.006**	**B1**	cao

Question 7

Inequalities on a number line · A22 · Algebra · AO1 · 3 marks

QN	ANSWER	MARK	GUIDANCE
7(a)	**Open circle at –2, filled circle at 3, joined by a line**	**B2**	B1 for a line from –2 to 3 with one end correct, or both circles correct with no line
7(b)	**–1, 0, 1, 2, 3**	**B1**	cao. Any order

Question 8

Probability tables · P4 · P5 · Probability · AO1/2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
8(a)	0.2	M1	For 1 – (0.35 + 0.25) (= 0.4)
		A1	oe, e.g. $\frac{1}{5}$
8(b)	28	B1	cao

Question 9

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

QN	ANSWER	MARK	GUIDANCE
9	Yes, with £5.76	P1	For 3.60 ÷ 5 (= 0.72), or a correct first step, e.g. 3.60 ÷ 5 × 3 for 3 notebooks
		P1	For 0.72 × 8 (= 5.76), or 3.60 + 2.16
		C1	For 'Yes' with £5.76, or 24p left over

Question 10

Estimation · N14 · Number · AO1/2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
10(a)	1000	M1	For rounding to 50, 4 and 0.2 (at least two correct)
		A1	For 1000 from 50 × 4 ÷ 0.2. Award A1 ft for a correct answer from other correct roundings
10(b)	Underestimate, with reason	C1	e.g. both numbers on the top were rounded down and the number on the bottom was rounded up (dividing by a bigger number gives a smaller answer)

Question 11

Pythagoras' theorem · G20 · Geometry & measures · AO2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
11	**No, with working**	**M1**	For $9^2 + 12^2$ or $81 + 144$ (= 225)
		M1	For $16^2 = 256$ or $\sqrt{225} = 15$ seen
		C1	For 'No' with $225 \neq 256$, or the longest side would need to be 15 cm

Question 12

Conversion graphs · A14 · Algebra · AO2 · 3 marks

QN	ANSWER	MARK	GUIDANCE
12(a)	**40**	**B1**	Accept 39 to 41
12(b)	**Finn, with 120 miles = 192 km**	**M1**	For a method using the graph and scaling, e.g. 30 miles = 48 km so 120 miles = 4 × 48, or 200 km = 125 miles
		C1	For 'Finn' with 192 km (190 to 194) or 125 miles (124 to 126)

Question 13

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

QN	ANSWER	MARK	GUIDANCE
13	**8:51 am**	**P1**	For listing multiples of 12 and 18 (at least 3 of each), or prime factors of 12 and 18
		P1	For 36 minutes identified as the LCM
		A1	Accept 08:51 or 0851

Question 14

Volume of a cuboid · G16 · R11 · Geometry & measures · AO3 · 4 marks

QN	ANSWER	MARK	GUIDANCE
14	15	P1	For $50 \times 30 \times 40$ (= 60 000 cm³)
		P1	For converting to litres (60) or finding $\frac{3}{4}$ of the volume (45 000 cm³ or 45 litres)
		P1	For a complete process, e.g. $45 \div 3$
		A1	cao

Question 15

Fractions and ratio · R5 · N12 · Ratio & proportion · AO3 · 3 marks

QN	ANSWER	MARK	GUIDANCE
15	90	P1	For Tia = 18 or Tia and Uma together = 54, or Uma's share $= \frac{2}{3} \times \frac{3}{5}$ $(= \frac{2}{5})$
		P1	For $54 \div 3 \times 5$ or $36 \div 2 \times 5$ oe
		A1	cao

Paper overview

Q	TOPIC	SPEC REF	STRAND	AO	MARKS
1	Roots and powers	N6	Number	AO1	2
2	Properties of quadrilaterals	G4	Geometry & measures	AO1	1
3	Substitution	A2	Algebra	AO1	2
4	Percentage of an amount	R9	Ratio & proportion	AO1	2
5	Stem and leaf diagrams	S3 · S4	Statistics	AO1/2	3
6	Standard form	N9	Number	AO1	2
7	Inequalities on a number line	A22	Algebra	AO1	3
8	Probability tables	P4 · P5	Probability	AO1/2	3
9	Direct proportion	R10	Ratio & proportion	AO3	3
10	Estimation	N14	Number	AO1/2	3
11	Pythagoras' theorem	G20	Geometry & measures	AO2	3
12	Conversion graphs	A14	Algebra	AO2	3
13	Lowest common multiple	N4	Number	AO3	3
14	Volume of a cuboid	G16 · R11	Geometry & measures	AO3	4
15	Fractions and ratio	R5 · N12	Ratio & proportion	AO3	3
Total					**40**

Marks by strand

Number	**10 marks (25%)**
Algebra	**8 marks (20%)**
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%)**