

MATHEMATICS - MARKING SCHEME

Types of Marks**Method Marks**

Method marks are awarded for presenting a correct method of solution and attempting to apply it. There are two types of method marks: **M** marks and **(M)** marks.

- **M marks** are only awarded if method is seen.
- **(M) marks** are awarded even when a correct answer is given and no workings are shown.

Accuracy Marks

There are two types of Accuracy marks: **A** marks and **B** marks.

- **A** marks are accuracy marks given for correct answer only following a correct method.
Accuracy marks are also awarded for incorrect answers which are correctly followed through (f.t.) from an incorrect previous answer, provided that f.t. is indicated in the marking scheme.
- **B** marks are accuracy marks awarded for specific results or statements independent of the method used.

Marking Scheme (Total 100 marks)

Que.	Requirements	Mark	Additional Guidance
1	(a) 2596	B1	3 M1 for finding decimal equivalent of 8%, $\frac{8}{25}$, $\frac{3}{8}$.
	(b) 8% , 0.25 , $\frac{8}{25}$, $\frac{3}{8}$, 0.38	M1 A1	
2	(a) $\frac{2}{8} + \frac{5}{8}$ $= \frac{7}{8}$	(M)1 A1	5 f.t. from (a)
	(b) Kayla saved $\frac{1}{8}$ $8 \times \text{€}5$ $= \text{€}40$	M1 M1 A1 f.t.	
3	(a) $m = \frac{\text{change in } y}{\text{change in } x} = \frac{1 - 6}{-2 - 8}$ $= \frac{1}{2}$ or 0.5	M1 A1	5 f.t. from (a) and (b)
	(b) (i) Plotting of points and joining of line (ii) 2	B1 B1	
	(c) $y = \frac{x}{2} + 2$ o.e.	A1 f.t.	
4	(a) (i) $3a^2 - 5ab + 24ab - 4b$ $3a^2 + 19ab - 4b$ (ii) $3 \times 2^2 + 19 \times 2 \times (-3) - 4 \times (-3)$ $12 - 114 + 12$ -90	M2 A1 (M)1 A1 f.t.	7 Award M1 for correct partial expansion f.t. from (a)(i) Award B1 for correct partial factorisation
	(b) $8xy(2x + 9y^2)$	B2	
5	(a) 21, 25	B1, B1	5 f.t. from (b)
	(b) $4n + 1$	B1	
	(c) $(35 \times 4) + 1$ $= 141$	M1 A1 f.t.	

6	(a)	Shop A $14.40 \div 12 = \text{€}1.20$ Shop B $10 \div 8 = \text{€}1.25$ Difference: $(48 \times 1.25) - (48 \times 1.20)$ $= \text{€}2.40$ Shop A	M1 M1 M1 A1 A1	11	
	(b)	$\frac{2}{9} = \frac{x}{72}$ $9x = 144$ $x = 16$ Total = $16 + 72 = 88$ rooms	M1 M1 A1		Equating 72 to 9 Using proportion
	(c)	$I = \frac{1.8}{100} \times 15000 = 270$ Amount = $15\ 000 + 270 = \text{€}15\ 270$	M1 (M)1 A1		
7	(a)	AB = 12 cm Constructing angle of 60° (arcs seen) AC = 8 cm	M1 M1 M1	8	± 0.1 cm $\pm 1^\circ$ ± 0.1 cm
	(b)	Construction of perpendicular bisector of AB. (arcs seen)	M1		
	(c)	Construction of perpendicular bisector of AC. (arcs seen) Point P labelled.	M1 A1		
	(d)	Drawing of circle passing through A, B and C.	A1		
	(e)	Radius = 6.1 cm (exact answer is 6.1101)	A1		± 0.2 cm
8	(a)	$\frac{1}{5}$	B1	5	o.e.
	(b)	(i) $\frac{1}{3}$ (ii) $24 - (8 + 4 + 7) = 5$ purple P(purple) = $\frac{5}{24}$ (iii) 0	B1 (M)1 A1 B1		o.e.
	(a)	$prt^2 = xq$ $t^2 = \frac{xq}{pr}$ $t = \pm \sqrt{\frac{xq}{pr}}$	(M)1 M1 A1		5
(b)	$5x - 17 = 8$ $5x = 25$ $x = 5$	M1 A1			

10	(a)	(i) 140° (ii) 96×4 $= 384$ members (iii) $96 \div 3$ $= 32$ members	B1 (M)1 A1 (M)1 A1	9	
	(b)	(i) Mode = 60 (ii) Mean = $\frac{490}{7}$ $= 70$ min (or 1 h 10 min) (iii) Median = 65	B1 M1 A1 B1		
11	(a)	Area of semicircle = $\frac{1}{2}(\pi \times 3.7^2)$ $= 21.504\dots \text{ m}^2$	M1 A1	5	21.5 or more accurate
	(b)	Area of trapezium = $\frac{1}{2}(7.4 + 12.2) \times 4.6$ $= 45.08 \text{ m}^2$ Total area = $21.504\dots + 45.08$ $= 66.584\dots \text{ m}^2$	M1 M1 A1 f.t.		f.t. from incorrect (a)
12	(a)	(i) -4 (ii) -1.7 and 4.7 (iii) -4.25	B1 B2 B1	5	-1 e.e.o.o. Accept answers between -4.2 and -4.3
	(b)	Line of symmetry correctly drawn at $x = 1.5$	B1		
13		$a = 64^\circ$	B1	6	
		$b = 64^\circ \div 2$ $b = 32^\circ$	(M)1 A1		
		$c = 180^\circ - (64^\circ \times 2)$ $c = 52^\circ$	M1 A1 f.t.		f.t. from incorrect angle a
		$d = 64^\circ$	B1		
14	(a)	(i) $r - p = 25$ (ii) $4r + 5p = 1540$	B1 B1	6	o.e. o.e.
	(b)	$5r - 5p = 125$ $4r + 5p = 1540$ $9r = 1665$ $r = 185$ or $\text{€}1.85$ $185 - p = 25$ $p = 160$ or $\text{€}1.60$	M1 A1 (M)1 A1		

15	(a)	$\sin \angle QPS = \frac{15}{17}$ $\angle QPS = 61.9^\circ$	M1 A1	9	
	(b)	$PS^2 = 17^2 - 15^2$ $PS = \sqrt{64}$ $PS = 8 \text{ m}$	M1 M1 A1		
	(c)	$\tan 7.6^\circ = \frac{15}{SR}$ $SR = 15 \div \tan 7.6^\circ$ $SR = 112.419... \text{ m}$ $PR = 112.419... + 8$ $PR = 120.419... \text{ m}$	M1 A1 M1 A1 f.t.		f.t. for incorrect (b)
16	(a)	$AB = \sqrt{9.6^2 + 24.7^2}$ $AB = 26.5 \text{ cm}$	M1 A1	6	
	(b)	In $\triangle ABC$ and $\triangle PQR$ $\angle ACB = \angle PRQ = 90^\circ$ (given) $AB = PQ = 26.5 \text{ cm}$ (from part (a)) $CB = RQ = 24.7 \text{ cm}$ (given) $\triangle ABC$ is congruent to $\triangle PQR$ RHS	M1 M1 M1 A1		For stating RHS