

# Silver Level

## Mark Scheme 10

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Difficulty Level	Silver
Booklet	Mark Scheme 10

**Time Allowed:** 58 minutes

**Score:** /48

**Percentage:** /100

**Grade Boundaries:**

9	8	7	6	5	4	3	2	1
>90%	80%	70%	60%	50%	40%	30%	20%	<20%

1. (a)	$1.21 \times 10^9 + 7.48 \times 10^7 + 5.2 \times 10^6$	$1.29 \times 10^9$	2	M1 Intention to add 3 correct numbers or digits 1 290 ... A1 cao Must be in standard form.
(b)	$(1.21 \times 10^9) \div (3.29 \times 10^6)$	368	2	M1 A1 awrt 368 ( 367.781153..)
				<b>Total 4 marks</b>

Question	Working	Answer	Mark	Notes		
2.	$\sin 38 = \frac{PQ}{12.2}$ or $\cos(90 - 38) = \frac{PQ}{12.2}$ oe			M1	12.2cos38 (9.61...) <b>and</b> $12.2^2 - "9.61"{}^2$ (= 56.4..)	correct statement of sine rule eg $\frac{PQ}{\sin 38} = \frac{12.2}{\sin 90}$
	("PQ" =) $12.2 \times \sin 38$ or $12.2 \cos(90 - 38)$ oe			M1	$\sqrt{"56.4"}$	correct expression for PQ eg (PQ) = $\frac{12.2 \sin 38}{\sin 90}$
		7.51	3	A1	awrt 7.51	
				<b>Total 3 marks</b>		

Question	Working	Answer	Mark	Notes	
3.	One bearing line at $260^\circ (\pm 2^\circ)$ or one 9.6 cm line ( $\pm 2\text{mm}$ ) from A	Intersection of 2 lines in boundary of overlay	2	M1 A1	Condone omission of <i>D</i> label Correct position of <i>D</i> within tolerance without any lines scores M1A1.
				<b>Total 2 marks</b>	

Question	Working	Answer	Mark	Notes
4.	0.5 x 10 x 12 (= 60) or 13 x 8 (= 104) or 8 x 10 (= 80)  0.5 x 10 x 12 (= 60) and 0.5 x 10 x 12 (= 60) and 13 x 8 (= 104) and 13 x 8 (= 104) and 8 x 10 (= 80) or 2 x "60" and 2 x "104" and "80"	408	3	M1 One correct face  M1 dep on M1 above (exactly 5 correct faces )  A1 Award M0A0 for 0.5 x 10 x 12 x 8 and M0A0 for 0.5 x 10 x 12 = 60 followed by 60 x 8, etc
				<b>Total 3 marks</b>

Question	Working	Answer	Mark	Notes
5.	64 x 4 (=256) 70 x 5 (=350) "350" – "256"	94 or 94% or 94 / 100 or 94 out of 100	4	M1 0.64 x 400 (= 256) 0.64 x 4 (= 2.56) M1 0.7 x 500 (= 350) 0.7 x 5 (= 3.5) M1 dep on M2 "350" – "256" (3.5 - 2.56) x 100 A1 NB: 94 embedded in working but not on answer line gets M3A0 unless contradicted.
	<b>Alternative (i):</b> List of 4 numbers adding to 256 List of 5 numbers adding to 350 list of 5 is identical to list of 4 but also contains 94 eg 94,50,50,56,100 and 50,50,56,100	94 or 94% etc (as above)		M1 M1 M1 dep on M2  A1 permitted answers as listed for A1 above
	<b>Alternative (ii):</b> 70 – 64 (=6) (70 – 64) X 4 (=24) 70 + 24	94 or 94% etc (as above)		M1 M1 M1 dep on M2  A1 permitted answers as listed for A1 above
				<b>Total 4 marks</b>

Question	Working	Answer	Mark	Notes
6. (a)	167.4 – 155 (= 12.4) “12.4” ÷ 155 (= 0.08)	8	3	M1 M1 dep A1 cao  167.4 ÷ 155 (= 1.08) "1.08" – 1 (= 0.08) 167.4 ÷ 155 (= 1.08) "1.08" × 100 (= 108)  If build up approach used, award M2A1 for correct answer, otherwise M0A0.
(b)	$\frac{125.4}{104.5} \times 100$ oe	120	3	M2  M1 for $\frac{125.4}{104.5}$ (= 1.2) or 104.5% = 125.4 or 1.045x = 125.4 oe or 1.2 seen or 5.4  A1  If build up approach used, award M2A1 for correct answer, otherwise M0A0.
				<b>Total 6 marks</b>

Question	Working	Answer	Mark	Notes
7.	$(AC^2 =) 10^2 + 10^2 (=200)$ $(AC =) \sqrt{(10^2 + 10^2)} (= 14.1\dots)$ $\pi \times \sqrt{(10^2 + 10^2)}$ oe or 14.1π or $2\pi \times 7.07$  <b>Alternative method:</b>  M1 $\cos 45 = \frac{10}{x}$ or $\sin 45 = \frac{10}{x}$  M1 dep $(x =) \frac{10}{\cos 45}$ or $(x =) \frac{10}{\sin 45}$ oe (= 14.1..)  M1 dep $\pi \times \frac{10}{\cos 45}$ or $\pi \times \frac{10}{\sin 45}$ oe	44.4	4	M1 M1 dep M1 dep  (AO <sup>2</sup> =) $5^2 + 5^2 (= 50)$ (AO =) $\sqrt{(5^2 + 5^2)} (=7.07\dots)$ $2 \times \pi \times \sqrt{(5^2 + 5^2)}$  M1  M1dep  M1 dep  A1 awrt 44.3 or 44.4
				<b>Total 4 marks</b>

Question	Working	Answer	Mark	Notes
8.	$(x \times x =) 4 \times 9 (=36)$ $x = \sqrt{36}$		6	M1 for $4 \times 9$ or 36 A1 accept - 6
				<b>Total 2 marks</b>

Question	Working	Answer	Mark	Notes
9. (a)		10 to 14	1	B1
(b)	$2 \times 2 + 6 \times 7 + 20 \times 12 + 13 \times 17 + 8 \times 22 + 3 \times 27$ or $4 + 42 + 240 + 221 + 176 + 81$ or 764		4	M2 Freq x all correct midpoint values stated or evaluated with intention to add (condone any one error). If not M2 then award M1 for all products $t \times f$ (and $t$ is consistently within the interval, including end values) and intention to add (condone any one error)
	“764” $\div$ 52			M1 (dep on at least M1) for division by 52. Accept their 52 if addition shown.
		14.7		A1 for answer rounding to 14.7 Accept 15 with working (15 without working gains M0A0)
(c)	$\frac{13+8+3}{52}$		2	M1 for $13 + 8 + 3$ or 24 or $\frac{a}{52}$ where $a < 52$
	$\frac{24}{52}$	$\frac{6}{13}$ oe		A1 Accept a decimal/percentage answer 0.461538...(46.15...%) truncated or rounded to 3 or more sig figs. Only accept 0.46(46%) if preceded by a more accurate answer or M1(above) awarded.
				<b>Total 7 marks</b>

Question	Working	Answer	Mark	Notes
10. (a)	$133.3 - 87.3$ or $46$ or $\frac{133.3}{87.3}(\times 100)$		3	M1 Difference for two given years
	$\frac{133.3 - 87.3}{87.3}(\times 100)$ or $\frac{46}{87.3}(\times 100)$ or $\left[\frac{133.3}{87.3} - 1\right](\times 100)$ or $0.527$			M1 for difference divided by 87.3 oe
		52.7		A1 for answer rounding to 52.7
(b)	$1.2x = 133.3$ or $120\%x = 133.3$		3	M1 also allow $120\% = 133.3$ or $\frac{133.3}{120}$ or $\frac{133.3}{x} = 1.2$ or $1.11 \dots$
	$x = \frac{133.3}{1.2}$ or $x = \frac{133.3}{120} \times 100$			M1 oe
		111.1		A1 for answer rounding to 111.1
				<b>Total 6 marks</b>

Question	Working	Answer	Mark	Notes
11. (a)		4, 0, (-2), -2, 0, (4)	2	B2 Award B1 for any 2 correct.
(b)	(0, 4), (1, 0), (2, -2), (3, -2), (4, 0), (5, 4)	Correct curve	2	B2 For the correct smooth curve. B1 for at least 5 points from table plotted correctly provided at least B1 scored in (a).
				<b>Total 4 marks</b>

Question	Working	Answer	Mark	Notes
12.	$12\pi$		3	M1 for circumference accept value which rounds to 37.7
	$30 \times 12\pi$ or $360\pi$			M1 correct expression for surface area
		1130		A1 accept awrt 1130 (3SF) e.g 1131 If full Surface Area given, then award 2 marks as long as you see $360\pi$ oe in working (M1 for $12\pi$ oe) Do not isw.
				<b>Total 3 marks</b>