Silver Level

Mark Scheme 9

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Difficulty Level	Silver
Booklet	Mark Scheme 9

Time Allowed: **57 minutes**

Score: **/47**

Percentage: **/100**

Grade Boundaries:

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

Question	Working	Answer	Mark	Notes
1	$20 = 2^2 \times 5$ and $24 = 2^3 \times 3$ or $2^3 \times 3 \times 5$ or 20,40,60,80,100,120 and 24,48,72,96,120		2	M1
		120		A1 or $2^3 \times 3 \times 5$ oe
				Total 2 marks

Question	Working	Answer	Mark	Notes
2 (a)	$7.2 \times \frac{2}{6}$ or $7.2 \div \frac{6}{2}$		2	M1
		2.4		A1 cao
(b)	scale factor = $\frac{8}{2}$ or 4 or $\frac{2}{8}$ or $\frac{1}{4}$		3	M1 for $\frac{8}{2}$ or 4 or $\frac{2}{8}$ or $\frac{1}{4}$
	3.7×4 or $3.7 \div \frac{1}{4}$			M1 (dep)
		14.8		A1 Cao **SC:** M1 for answer of 11.1
(c)	4^2 **or** $(8 \div 2)^2$ **or** $(2 \div 8)^2$ **or** $(1 \div 4)^2$		2	M1 or for complete correct method of finding vert ht (h cm) of ΔPQR and vert ht (H cm) of ΔABC eg $\frac{1}{2} \times "14.8" \times h = 72$ $h = \frac{144}{"14.8"}$ (9.7297...) $H = \frac{144}{"14.8"} \div "4"$ (2.4324...)
		4.5oe		A1 **SC :** M1 for an answer of 8
				Total 7 marks

Question	Working		Answer	Mark	Notes
3 (a)	$12x + 20y = 56$ $12x + 9y = 12$	$9x + 15y = 42$ $20x + 15y = 20$		4	M1 for coefficients of x or y the same or for correct rearrangement of one equation followed by substitution in the other eg $3x + 5\left(\frac{4-4x}{3}\right) = 14$
	(y =) 4	(x =) −2			A1 dep on M1
	eg $3x + 5 \times 3 = 14$				M1 (dep on first M1) for substituting for the other variable
			−2 4		A1 cao dep Award full marks for correct values if at least first M1 scored
(b)			−2, 4	1	B1 ft from (a)
					Total 5 marks

Question	Working	Answer	Mark	Notes
4	$2 \times \pi \times 2.7 \times 4.9$ or 83(.12654...)		3	M1 May be rounded or truncated to at least 2 sf (83.0844 if 3.14 used)
	6×8.7^2 oe or 454.14			M1 May be rounded or truncated to at least 2 sf
		537		A1 for answer rounding to 537
				Total 3 marks

Question	Working	Answer	Mark	Notes
5 (i)	$\frac{-6 \pm \sqrt{6^2 - 4 \times -5 \times 2}}{2 \times -5}$		4	M1 for correct substitution condone + in place of ± and condone one sign error in substitution
	$\frac{-6 \pm \sqrt{76}}{-10}$ or $\frac{-6 \pm \sqrt{36+40}}{-10}$			M1 for correct simplification
		−0.272 1.47		A1 Award for answers which round to −0.272 (−0.2717...) and 1.47 (1.4717…) Award 3 marks for correct answers, if at least M1 scored. Condone missing negative solution
(ii)		1.47		B1 for answer which rounds to 1.47 ft from (i) if only one positive solution given
				Total 4 marks

6.	Fully correct factor tree or repeated division to reach prime factors (condone inclusion of 1's) or 3, 5, 5, 11 or 3 x 5 x 5 x 11 x 1	3 x 5 x 5 x 11	3	M2 Factors must multiply to 825 If not M2 then M1 for correct but incomplete factor tree/ division ladder which includes 2 different primes. (e.g. 25 x 3 x 11) A1 cao Accept 3 x 5^2 x 11 and dots in place of multiplication signs.
				Total 3 marks

7.	4 x 2.6 (= 10.4) (4 x 2.6 – 5) ÷ 3	1.8	3	M1 or 5.4 seen. M1 Correct full calculation which would lead to correct answer. A1 cao
	Alternative solution: Any 4 numbers (including 5) that have a total 10.4 or any 3 numbers that have a total of 5.4 (Sum of their 3 numbers) ÷ 3	1.8	3	M1 M1 Correct full calculation which would lead to correct answer. A1
				Total 3 marks

8. (a)		Algeria	1	B1 Accept 2.38 x 10^6
(b)	$1.13 \times 10^6 + 2.38 \times 10^6 + 9.24 \times 10^5 + 5.83 \times 10^5$ or digits 5017	5.017×10^6	2	M1 Intention to add 4 correct values. A1 accept 5 x 10^6 or better
(c)	$7.91 \times 10^7 \div 1.13 \times 10^6$	70 oe	2	M1 A1
				Total 5 marks

9.	(*DBC* =) 60 – *x* (Angles in an) equilateral triangle (= 60 degrees) *BDC* = 60 – *x* or *BCD* = 60 + 2*x* oe Base/bottom angles in an isosceles triangle (are equal) (*BCD* =) 60 + 2*x*	2*x*	4	B1 Can be marked on diagram. {Reason 1} B1 Can be marked on diagram. B1 {Reason 2} both reasons 1 and 2 needed for B1 Can be marked on diagram. B1 Answer only = B3. Numerical methods leading to a numerical answer can only score B1 (for giving both reasons adequately).
	Alternative: {Call ACD "*y*"} (*BDC* and *DBC* =) 60 – "*y*"/2 Base/bottom angles in an isosceles triangle (are equal) *x* + (60 – "*y*"/2) = 60 oe (Angles in an) equilateral triangle (= 60 degrees)	2*x*	4	B2 B2 for both (*BDC* and *DBC* =) 60 – *y*/2 B1 for either (*BDC* or *DBC* =) 60 – *y*/2 Can be marked on diagram. {Reason 1} i.e. Angle *ABC* is 60 B1 {Reason 2} both reasons needed for B1 B1 Answer only = B3. Numerical methods leading to a numerical answer can only score B1 (for giving both reasons adequately).
				Total 4 marks

10.	(*x* – 5){4(*x* – 5) + 3}	(*x* – 5)(4*x* – 17)	2	M1 Accept (*x* – 5){4*x* – 20 + 3} or reaching $4x^2 - 37x + 85$ A1
				Total 2 marks

11. (a)	$14 \div 4$ oe	3.5	2	M1 A1
(b)	4 (cms) = 100 000 (cms) or 4 : 100 000 or 100 000 ÷ 4 or 1 (km) = 0.00004 (km) or 1 : 0.00004 or "3.5" x $10^5 \div 14$	1 : 25 000	2	M1 A1 cao
				Total 4 marks

12. (a)	228 – 180 (=48) or 360 – 228 (= 132) then 180 – 132	048	2	M1 A1	Can be marked on diagram. i.e Full method leading to correct answer. Accept 48
(b)		110	1	B1	
(c)	228 – 118 (= 110) (180 – "110") ÷ 2 (= 35) "48" + "35"	083	2	M1ft A1	bearing from (a) + 35 accept 83
					Total 5 marks