

MARK SCHEME for the October/November 2012 series

0581 MATHEMATICS

0581/12

Paper 1 (Core), maximum raw mark 56

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Abbreviations

cao	correct answer only
cso	correct solution only
dep	dependent
ft	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
www	without wrong working

Qu.	Answers	Mark	Part Marks
1	$\frac{15}{56}$	1	
2	620	1	
3	(a) 8000 cao (b) 0.08 cao	1 1	
4	(a) 91 700 000 (b) 9.17×10^7	1 1 ft	Their (a) in standard form.
5	(a) $\frac{5}{19}$ oe (b) $\frac{11}{19}$ oe	1 1	0.263 0.579 or 0.5789
6	[C=] $\frac{F-32}{1.8}$ oe final ans.	2	M1 for first or second step correct e.g. $F - 32 = 1.8 C$
7	$\begin{pmatrix} -2 \\ -10 \end{pmatrix}$	2	B1 for each correct component or [3b] = $\begin{pmatrix} -6 \\ -9 \end{pmatrix}$ seen
8	(a) -7 (b) (+) 4	1 1	
9	16	3	M2 for $\frac{40.60-35}{35} \times 100$ or $\frac{40.6}{35} \times 100 - 100$ or M1 for $40.60 - 35$ or $\frac{40.6}{35}$
10	(a) 12 and/or 18 (b) 16 (c) 13	1 1 1	

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11	(a) 375 (b) 22.5	1 2 ft	M1 for their (a) $\div 1000 \times 60$ or $1500 \times 15 \div 1000$ If zero SC1 for answer figs 225
12	(a) 4 (b) 2 (c) 1 cao	1 1 1	
13	113 000 or 112 795 to 112 840	3	B1 for 85 000 M1 for $\pi \times 0.65^2 \times \text{figs } 85$
14	(a) 5 30 pm (b) 67	1 2	M1 for 10h 45min and 3h 15min, oe seen or 53.75 and 3.25 or 53.45 and 3.15
15	(a) 50 (b) 65	2 1 ft	M1 for method of finding base angle of isosceles triangle (could be on diagram). $115 - \text{their (a)}$ or $(180 - \text{their (a)}) \div 2$
16	(\$) 693 (.00)	3	M1 for $600(1 + \frac{7.5}{100})^2$ or equivalent in stages. A1 for 693.4 or 693.37 or 693.38 or 693.375 A1ft for their answer to the nearest dollar If zero SC2 for 93 and SC1 for 93.4 or 93.37 or 93.38
17	(a) $2x(3x - 4y)$ final ans. (b) $7a^7$ final ans.	2 2	M1 for $x(6x - 8y)$ or $2(3x^2 - 4xy)$ M1 for $7a^k$ or ka^7 $k \neq 0$ for both cases
18	(a) Points plotted correctly (b) Positive (c) Line of best fit ruled	2 1 1	B1 6 or 7 points correct
19	(a) 4.79[1] or 4.79[06...] (b) 37.879 or 37.9[0]	3 2 ft	M2 for $\sqrt{(5.6^2 - 2.9^2)}$ or better, or M1 for $2.9^2 + BD^2 = 5.6^2$ or better. M1 for $\sin [BCD =] \text{ their (a)} / 7.8$ or better
20	(a) Angle (in a) semi-circle (b) (i) 56 (ii) 112 (c) 540 cao	1 1 1 2	M1 for all attempts to sum all the angles or any correct method for the sum of angles of a pentagon.