

## **MARK SCHEME for the October/November 2014 series**

### **0581 MATHEMATICS**

**0581/11**

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.

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**Abbreviations**

- cao correct answer only
- dep dependent
- FT follow through after error
- isw ignore subsequent working
- oe or equivalent
- SC Special Case
- nfww not from wrong working
- soi seen or implied

Qu.	Answers	Mark	Part Marks
1	$\begin{pmatrix} 7 \\ -4 \end{pmatrix}$	1	
2 (a)	15.1 cao	1	
(b)	20 cao	1	
3 (a)	E B A cao	1	
(b)	Z cao	1	
4	113	2	M1 for $360 - (98 + 90 + 105)$ or better
5	137	2	M1 for attempt at ordering to at least 7 <sup>th</sup> term or 132 <b>and</b> 142 indicated
6	3 3.14 $\pi$ 3.142 $\frac{22}{7}$	2	B1 for 3.141[5...] to 3.1416 <b>and</b> 3.1428 to 3.1429 or 3.143 seen or SC1 for 4 in correct order
7	$\frac{3}{12}$ <b>and</b> $\frac{2}{12}$ $\frac{5}{12}$ cao	M1 A1	Equivalent denominators can be used, working <b>must</b> be shown.
8	$4w(2wx - 3y)$ Final answer	2	B1 for $4(2w^2x - 3wy)$ or $w(8wx - 12y)$ or $2w(4wx - 6y)$
9	651 to 652	2	M1 for $\pi \times 3.6^2 \times 16$ or better
10 (a)	-3	1	
(b)	4	1FT	FT their numerical mode
11	$4x - 7$ Final answer	2	B1 for answer $4x + k$ or answer $jx - 7$ where $j \neq 0$ or correct answer seen then spoilt

12 (a)	91 or 13	1	
(b)	2, 7 and 13	2	<b>B1</b> for correct products of primes method or correct factor tree or ladder or 2 correct and 0 wrong or 3 correct and 1 extra
13 (a)	280	1	
(b)	$5 \times 10^6$	2	<b>B1</b> for 5 000 000 oe or <b>B1</b> for answer $k \times 10^6$ or $5 \times 10^k$
14 (a)	4 [days]	2	<b>M1</b> for $(39 - 15) \div 6$ or $15 + 6 + 6 + 6 + 6$
(b)	[C=] $15 + 6d$ Final answer	1	
15	9 [sides]	3	<b>M2</b> for $360 \div (180 - 140)$ or <b>M1</b> for $180 - 140$
16 (a)	66	1	
(b)	42	2FT	<b>FT</b> <i>their (a)</i> – 24, only if <i>their (a)</i> > 24 or <b>B1</b> for either of these, may be on diagram, angle $OAC = 24$ or angle $BAC = \textit{their (a)}$
17	[\$] 942.41	3	<b>M2</b> for $850 \times 1.035^3$ oe or <b>M1</b> for $850 \times 1.035 \times 1.035$ oe or <b>SC2</b> for answer of interest only
18	0.29 cao	3	<b>M2</b> for $30 - 24 \times 1.2378$ or $24 \times 1.2378 - 30$ or <b>M1</b> for $24 \times 1.2378$
19	Correct ruled net drawn	3	<b>B1</b> for rectangles, even if incorrect or not joined, drawn one on each side of the given one and two triangles opposite sides  and <b>B1</b> for 2 correct ruled rectangles  and <b>B1</b> for 2 correct ruled equilateral triangles
20	[x =] 3, [y =] 0.5	3	<b>M1</b> for correct method to eliminate one variable <b>A1</b> for [x =] 3 <b>A1</b> for [y =] 0.5  If zero scored, <b>SC1</b> for correct substitution and evaluation to find the other variable

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21	(a)	80	2	M1 for $5 \times (-4)^2$ or $5 \times 4^2$ or better
	(b)	$[\pm]\sqrt{\frac{y}{5}}$ or $\frac{\sqrt{y}}{\sqrt{5}}$ Final answer	2	M1 for correct first step i.e. $\frac{y}{5} = x^2$ or $\sqrt{y} = \sqrt{5}x$ or correct 2 <sup>nd</sup> step after incorrect 1 <sup>st</sup> step seen
22	(a)	18.4	2	M1 for $[PQ^2 =]16^2 + 9^2$ or better
	(b)	[0]60.4 to [0]60.73	2	M1 for $\tan[...]=\frac{16}{9}$ or better or $\sin[...]=\frac{16}{their(a)}$ or better or $\cos[...]=\frac{9}{their(a)}$ or better  If zero scored, SC1 for answer [0]29.3 to [0]29.4