

**MARK SCHEME for the October/November 2011 question paper  
for the guidance of teachers**

**0581 MATHEMATICS**

**0581/13**

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 must be read in conjunction with the question papers and the report on the examination.

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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	25	1	
2	(a) 105 002 (b) 110 000	1 1ft	
3	$8x + 5y$ cao	2	<b>B1</b> $8x$ or $5y$ in final answer
4	(a) $7 \times (6 - 3) + 5$ (b) $8 - 6 \times (4 - 1)$	1 1	
5	$\frac{11}{21}$ , 52.4%, 0.525, $\frac{111}{211}$	2	<b>M1</b> for conversion to decimals or %, allow 1 error 0.5238..., 0.524, 0.525, 0.526 or <b>B1</b> for 3 in correct order <b>SC1</b> correct but reverse order
6	8	2	<b>M1</b> for 240 or 0.3 seen or figs $24 \div$ figs 3
7	112	2	<b>M1</b> for $240 \div (7 + 8) \times 7$
8	(a) 211 cao (b) 216 cao	1 1	
9	(\$)138	2	<b>M1</b> for $120 \times 1.15$ oe <b>SC1</b> answer 18
10	$(x =) -3$ $(y =) 5$	2	<b>M1</b> for correctly eliminating one variable
11	$(x =) 3.5$	2	<b>M1</b> for $2x - 3 = 2 \times 2$ or better $\frac{2x}{2} = 2 + \frac{3}{2}$
12	(a) $1.28 \times 10^5$ (b) 128 500	1 1	
13	882	2	<b>M1</b> $800 \times 1.05 \times 1.05$
14	$5h(g^2 + 2j)$	2	<b>B1</b> for $5(g^2h + 2hj)$ or for $h(5g^2 + 10j)$
15	298.79 cao	2	<b>M1</b> for $500 \div 1.6734$
16	$20x^9$ cao	2	<b>B1</b> for $kx^9$ or $20x^k$
17	130	2	<b>M1</b> for $26 \times 500\ 000$ or 1 cm represents 5 km oe

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18	$\frac{1}{9}, \frac{1}{4}$	<b>M1</b>	Both fractions seen
	$\left(\frac{1}{9} + \frac{1}{4} = \right) \frac{4}{36} + \frac{9}{36} = \frac{13}{36}$	<b>E1</b>	Both fractions over a common denominator and added to give $\frac{13}{36}$
19	(a) 5 or -5	<b>1</b>	
	(b) -0.714 (-0.7143 to -0.7142) or $-\frac{5}{7}$	<b>2</b>	<b>M1</b> for $-2 + 2 + 1 - 3 - 1 - 2$ and $\div 7$
20	44.4 (44.36 to 44.38)	<b>3</b> <b>www</b>	<b>M2</b> for $8 \times 8 - \pi \times 2.5^2$ or <b>M1</b> for $\pi \times 2.5^2$
21	(a) (i) 70	<b>1</b>	
	(ii) 64	<b>1</b>	
	(b) Kite	<b>1</b>	
22	(a) 0.0299 or 0.02992...	<b>1</b>	
	(b) $6.4 \times 10^{13}$	<b>2</b>	<b>B1</b> for $64 \times 10^{12}$ or 64 000 000 000 000
23	(a) (i) B at (5, -2)	<b>1</b>	
	(ii) $\begin{pmatrix} 10 \\ -4 \end{pmatrix}$	<b>1ft</b>	
	(b) (-1, -4)	<b>2ft</b>	<b>B1, B1</b> follow through their B plotted
24	(a) (DB =) 9.75 or 9.746 to 9.747	<b>3</b>	<b>M2</b> for $\sqrt{(12^2 - 7^2)}$ or <b>M1</b> for $12^2 = 7^2 + x^2$ or better
	(b) (Angle CAD =) 32.6 or 32.57 to 32.58	<b>2</b>	<b>M1</b> for $\sin \frac{7}{13}$