

**MARK SCHEME for the May/June 2013 series**

**0444 MATHEMATICS (US)**

**0444/11**

Paper 1 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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<b>Page 2</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – May/June 2013</b>	<b>0444</b>	<b>11</b>

### 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
soi	seen or implied

Qu	Answers	Mark	Part Answers
1	$\frac{9}{20}$ cao	1	
2	11 or -11	1	
3	-9 or -23	2	<b>B1</b> for 7 or 16 seen
4	72	2	<b>M1</b> for $84 \div 7$
5	105	2	<b>M1</b> for $180 - 55 - 50$ <b>or B1</b> for 55 or 75 seen in the correct angle inside the triangle
6	8	2	<b>M1</b> for $\frac{3k}{2k} \times \frac{16n}{3n}$
7 (a)	$\begin{pmatrix} 6 \\ -8 \end{pmatrix}$	1 1	If zero, <b>SC1</b> for vector $QP$
(b)	(-1, 1)	1	
8	$[b = ] 5(a + 9)$ oe final answer	2	<b>M1</b> for one correct step
9 (a)	32	1	<b>B1</b> for $7n$
(b)	$7n - 3$ oe	2	
10 (a)	-6	1	<b>B1</b> for $\frac{12}{16}$ or $\frac{14}{16}$ or $\frac{13}{16}$ seen
(b)	13	2	
11 (a)	[0].55 oe	1	<b>M1</b> for $40 \times [0].45$ oe
(b)	18	2	
12 (a)	cuboid	1	condone [rectangular] prism
(b)	pentagon	1	
(c)	obtuse	1	

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2013	0444	11

13 (a)	7	1	
(b)	37.5	1	
	cm <sup>3</sup>	1	
14	32.64 cao final answer	3	<p><b>M1</b> for <math>400 + 400 \times \frac{4}{100}</math>  <b>and M1</b> for interest for 2<sup>nd</sup> year  <math>= \frac{4}{100} \times \text{their } 416</math>  <b>OR</b></p> <p><b>M2</b> for <math>400 \times (1 + \frac{4}{100})^2 - 400</math>  <b>or M1</b> for <math>400 \times (1 + \frac{4}{100})^2</math>  <b>or if zero, SC2</b> for answer 432.64</p>
15 (a)	55[.00]	1	
(b)	200	2	<b>M1</b> for $220 \div 1.1$ or equivalent
16 (a) (i)	$[p =] -1$ <b>and</b> $[q =] 5$	1	
(ii)	$1 \leq f(x) \leq 19$ oe	1	Accept $y$ for $f(x)$ Condone $<$ for $\leq$
(b)	$[0], 1, 2, 3, 4$ oe	1	
17 (a)	C, D	1, 1	
(b)	-2	1	
18 (a)	correct ruled line two pairs of correct arcs	1 1	
(b)	correct ruled line two pairs of correct arcs	1 1	
19 (a)	$\frac{1}{25}$	1	
(b)	$[0].25$	1	
(c) (i)	$a^9$ final answer	1	
(ii)	$4b^{12}$ final answer	2	<b>B1</b> for $4b^k$ <b>or B1</b> for $kb^{12}$ where $k$ is an integer ( $k \neq 0$ )

<b>Page 4</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – May/June 2013</b>	<b>0444</b>	<b>11</b>

<b>20 (a)</b>	$5x + 15$ final answer	<b>1</b>	
<b>(b)</b>	$3x(4y - x)$ final answer	<b>2</b>	<b>B1</b> for $3(4xy - x^2)$ <b>or</b> $x(12y - 3x)$
<b>(c)</b>	15	<b>2</b>	<b>M1</b> for correct first step ie $5x = 51 + 24$ <b>or</b> $x - \frac{24}{5} = \frac{51}{5}$ <b>or better</b>