

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

**0444 MATHEMATICS (US)**

**0444/11**

Paper 1 maximum raw mark 56

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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
- 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	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	

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

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<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>