

CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

MARK SCHEME for the May/June 2013 series

0580 MATHEMATICS

0580/13

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 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 |

| Question | Answers | Mark | Part Marks |
|-----------------|---|----------------------------|--|
| 1 | 109 | 1 | |
| 2 | 3.177 | 2 | B1 for 3.176[5] or 3.17 or 3.18 |
| 3 | 1500 or 3 <u>pm</u> | 2 | B1 for 1h50 or 2h[0]5 or SC1 for 1255 + <i>their</i> 1h 50 + 15mins correctly evaluated |
| 4 | $\frac{30}{300}$ oe www | 2 | M1 for 30 seen or $\frac{k}{300}$ seen |
| 5 | [x =] 7 | 2 | M1 for correct first step $3x = 16 + 5$ or $x - \frac{5}{3} = \frac{16}{3}$ |
| 6 | 79.5 [$\leq S <$] 80.5 | 1, 1 | SC1 answers reversed |
| 7 | £ or pound[s] working must be shown | 2 | M1 for $425 \div 1.14$ or 365×1.14 |
| 8 | $\frac{18}{5}$ and $\frac{9}{4}$ seen $\frac{18}{5} \times \frac{9}{4}$ and $\frac{72}{45}$ or $\frac{24}{15}$ or $\frac{8}{5}$ oe seen | M1 A1 | Not essential to see $1\frac{3}{5}$ |
| 9 | $2y(3xy - 4)$ | 2 | B1 for $2(3xy^2 - 4y)$ or $y(6xy - 8)$ |
| 10 (a) | [\pm] 2.28 or 2.282 to 2.2822 | 1 | |
| (b) | 0.109 or 0.1094 [3 ...] | 1 | |
| 11 (a) | 129 | 1 | |
| (b) | Obtuse | 1 | |

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| | | | |
|---------|---|-----|---|
| 12 (a) | $[PQ =] \begin{pmatrix} 9 \\ -7 \end{pmatrix}$ | 1 | |
| (b) | $(-1, -3)$ | 1 | |
| 13 | $(\$) 461.25 \text{ cao}$ | 3 | <p>M1 for $4\,500 \times 1.05^2$ oe</p> <p>A1 for 4961.25</p> <p>A1ft their amount – 4500</p> <p>OR</p> <p>M2 for $4500 \times 0.05 + (4500 \times 1.05) \times 1.05$ or</p> <p>M1 for $4500 \times 0.05 + 4500$</p> |
| 14 | 260 | 3 | <p>M2 for $[2 \times] (4 \times 10 + 18 \times 5)$ oe</p> <p>or M1 for a correct area statement</p> |
| 15 (a) | $[x =] 7$ | 1 | |
| (b) | $3h^5$ | 2 | B1 for $3h^n$ ($n \neq 0$) or kh^5 |
| 16 (a) | 1.1×10^5 | 2 | B1 for 110 000 oe e.g. 11×10^4 |
| (b) | 5×10^3 | 2 | B1 for 5000 oe e.g. 0.5×10^4 |
| 17 (a) | 60 | 1 | |
| (b) | Correct net | 3 | <p>B1 for 3 rectangles and a triangle to the right and left of rectangles.</p> <p>B1 for 3 accurate (6 by 4) rectangles joined.</p> <p>B1 for 2 equilateral triangles joined in correct positions</p> |
| 18 (a) | 6 points correctly plotted | 2 | B1 for 4 or 5 correct |
| (b) | Correct ruled line of best fit. | 1 | |
| (c) | Negative | 1 | |
| 19 (a) | $B(3, 6.5)$ plotted and a ruled line A to B | 1 | |
| (b) (i) | 1.5 oe | 2ft | M1 for $\frac{\text{Rise}}{\text{Run}}$ applied to their line |
| (ii) | $(y =) 1.5x + 2$ | 2ft | B1 for their (b) (i) $x + a$ ($a \neq 2$) or $b x +$ their 2 ($b \neq 0$ or 1.5) |
| (c) | Ruled Line perpendicular to their line ($\pm 2^\circ$) and through the point $(2, 5)$ | 1ft | |

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|----------------|---|----------|--|
| 20 (a) | 226.98 to 227.01 | 2 | M1 for $\pi \times (17 \div 2)^2$ |
| (b) (i) | Angle or triangle [in a] semi-circle | 1 | |
| (ii) | 15.9 or 15.90 to 15.91 or $\sqrt{253}$ | 3 | M2 for $\sqrt{17^2 - 6^2}$ or M1 for $17^2 = BC^2 + 6^2$ or better. |