

MARK SCHEME for the May/June 2013 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.

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 (a) | 1.32656 | 1 | |
| (b) | 1.327 | 1ft | |
| 4 | 72 | 2 | M1 for $84 \div 7$ |
| 5 (a) | $\begin{pmatrix} 2 \\ 3 \end{pmatrix}$ | 1 | |
| (b) | $\begin{pmatrix} 8 \\ -12 \end{pmatrix}$ | 1 | |
| 6 | 105 | 2 | M1 for $180 - 55 - 50$ or B1 for 55 or 75 seen in the correct angle inside the triangle |
| 7 | correct working; e.g. $\frac{3}{2} \times \frac{16}{3} = 8$ | 2 | M1 for $\frac{3k}{2k}$ and A1 for $\frac{3k}{2k} \times \frac{16n}{3n} = 8$ |
| 8 | 11.35, 11.45 | 1, 1 | SC1 for both answers correct but reversed |
| 9 | $[b =] 5(a + 9)$ oe final answer | 2 | M1 for one correct step |
| 10 | $7n - 3$ oe | 2 | B1 for $7n$ |
| 11 (a) | -6 | 1 | |
| (b) | 13 | 2 | B1 for $\frac{12}{16}$ or $\frac{14}{16}$ or $\frac{13}{16}$ seen |
| 12 (a) | [0].55 oe | 1 | |
| (b) | 18 | 2 | M1 for $40 \times [0].45$ oe |

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| | | | | |
|----|----------|---|--------|---|
| 13 | (a) | cuboid | 1 | condone [rectangular] prism |
| | (b) | pentagon | 1 | |
| | (c) | obtuse | 1 | |
| 14 | (a) | 7 | 1 | M1 for $\pi \times 5.2^2 \times 15$ |
| | (b) | 1270 or 1274 or 1274.2 to 1274.4 | 2 | |
| 15 | | 454.27 cao final answer | 3 | M1 for $420 \times \left(1 + \frac{4}{100}\right)^2$ oe and A1 for 454 or 454.2 to 454.3 or SC2 for answer 34.27 or SC1 for answer 34.2 to 34.3 |
| 16 | | 175 cao final answer | 3 | B2 for 175.4... or M1 for $200 \div 1.14$ |
| 17 | (a) | correct ruled line two pairs of correct arcs | 1 1 | |
| | (b) | correct ruled line two pairs of correct arcs | 1 1 | |
| 18 | (a) | 5^{-2} and 0.2^2 | 2 | M1 for any two correct decimal values seen with the correct expression e.g. 0.04, 0.4, 0.25, 0.16, 0.04 B1 for $4b^k$ or B1 for kb^{12} where k is an integer ($k \neq 0$) |
| | (b) (i) | a^9 | 1 | |
| | (b) (ii) | $4b^{12}$ | 2 | |
| 19 | (a) | $5x + 15$ final answer | 1 | B1 for $3(4xy - x^2)$ or $x(12y - 3x)$ M1 for a correct first step |
| | (b) | $3x(4y - x)$ final answer | 2 | |
| | (c) | 15 | 2 | |
| 20 | (a) | 4 cao | 1 | M1 for $3 + 6 + 5 + 7 + 4$ or 21 seen M1 for $3 \times 1 + 6 \times 2 + 5 \times 3 + 7 \times 4 + 4 \times 5 + 2 \times 6$, allow one incorrect product or 90 seen and M1 dep for 'their 90' $\div 27$ |
| | (b) | $\frac{21}{27}$ oe isw | 2 | |
| | (c) | 3.33(3...) | 3 | |