Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

MATHEMATICS
0580/11
Paper 1 (Core)
October/November 2017
MARK SCHEME
Maximum Mark: 56

## Published

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.

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## Abbreviations

| cao | correct answer only |
| :--- | :--- |
| dep | dependent |
| FT | follow through after error |
| isw | ignore subsequent working |
| oe | or equivalent |
| SC | Special Case |
| nfww | not from wrong working |
| soi | seen or implied |


| Question | Answer | Marks | Partial marks |
| :---: | :---: | :---: | :---: |
| 1 | 101 | 1 |  |
| 2 | 9944 | 1 |  |
| 3 | 2 | 1 |  |
| 4 | 88 | 2 | M1 for $\frac{68+81+74+89+x}{5}=80$ oe or B1 for 400 |
| 5(a) | 18.8 cao | 1 |  |
| 5(b) | 19 cao | 1 |  |
| 6 | 1.5 oe | 2 | B1 for 2.25 oe |
| 7 | $3 x(4 x+5 y-3)$ final answer | 2 | B1 for $3\left(4 x^{2}+5 x y-3 x\right)$ or $x(12 x+15 y-9)$ allow in working or correct answer spoiled <br> If zero scored, <br> SC1 for $3 x(4 x+5 y-3)$ with only 2 correct elements in the brackets, allow in working |
| 8 | $14.25 \ldots \ldots .14 .35$ | 2 | B1 for each correct or both correct but reversed |
| 9 | 63.6 or 63.61 to 63.63 | 2 | M1 for $\pi \times 4.5^{2}$ |
| 10(a) | $(-2,3)$ | 1 |  |
| 10(b) | Correct rhombus with 4th point at (2,2) | 1 |  |
| 11(a) | $\frac{5}{9}$ cao | 1 |  |
| 11(b) | [0]. 09 then 9 [\%] | 2 | B1 for each |


| Question | Answer |  | Marks | Partial marks |
| :---: | :---: | :---: | :---: | :---: |
| 12 | $\frac{5}{3}$ | $\frac{2}{3}+\frac{4}{15}$ | B1 | Allow $\frac{5 k}{3 k}$ |
|  | $\frac{25}{15}\left[\text { and } \frac{11}{15}\right]$ | $\frac{10}{15}\left[\text { and } \frac{4}{15}\right]$ | M1 | Correct method to find common denominator e.g. $\frac{75}{45}$ and $\frac{33}{45}$ <br> Follow through their $\frac{5}{3}$ for the M1 mark |
|  | $\frac{14}{15} \text { cao }$ | $\frac{14}{15}$ cao | A1 |  |
| 13(a) | 343 |  | 1 |  |
| 13(b) | -11 |  | 1 |  |
| 13(c) | 343 |  | 1 |  |
| 14(a) | $\binom{2}{7}$ |  | 1 |  |
| 14(b) | $\binom{2}{5}$ |  | 1 |  |
| 14(c) | $\binom{8}{20}$ |  | 1 |  |
| 15 | 54 |  | 3 | M2 for $\frac{180 \times(5-2)}{5}$ or $180-\frac{360}{5}$ or M1 for $180 \times(5-2)$ or $\frac{360}{5}$ |
| 16 | 16.1 or 16.12 to 16.13 |  | 3 | M2 for $\sqrt{ }\left(18^{2}-8^{2}\right)$ or better or M1 for $18^{2}=[\ldots]^{2}+8^{2}$ or better |
| 17(a) | $m^{10}$ final answer |  | 1 |  |
| 17(b) | $20 x^{5} y^{2}$ final answer |  | 2 | B1 for 2 out of 3 elements correct in final answer or correct answer spoiled |


| Question | Answer | Marks | Partial marks |
| :---: | :---: | :---: | :---: |
| 18 | Correct method to eliminate one variable | M1 |  |
|  | [ $x=$ ] - 2 | A1 |  |
|  | $[y=] 3$ | A1 | If zero scored, <br> SC1 for both correct but no or wrong working or SC1 for 2 values satisfying one of the original equations |
| 19(a)(i) | $\begin{aligned} & 99^{\circ} \\ & 63^{\circ} \\ & 36^{\circ} \end{aligned}$ | 3 | B1 for each or M1 for $162 \div 18$ or $360 \div 40$ or better <br> If zero scored, SC1 for 3 angles that add to 198 |
| 19(a)(ii) | Correct labelled pie chart | 1FT | FT their table if their angles add to 198 |
| 19(b) | $\frac{252}{360}$ or better fraction isw | 1 |  |
| 20(a) | 71.48 | 2 | M1 for $12.8 \times 10.4$ or $9.2 \times 6.7$ <br> or for an area of a suitable rectangle from shaded area |
| 20(b) | 132 | 3 | M2 for $2 \times(8 \times 2+2 \times 5+8 \times 5)$ oe or M1 for at least two of $8 \times 2,8 \times 5$ and $2 \times 5$ |
| 21(a)(i) | Correct ruled bisector with two pairs of correct arcs | 2 | B1 for correct ruled bisector missing/wrong arcs or 2 pairs of correct arcs |
| 21(a)(ii) | Correct ruled perpendicular bisector with two pairs of correct arcs | 2 | B1 for correct ruled bisector missing/wrong arcs or 2 pairs of correct arcs |
| 21(b) | Correct region shaded | 1 | Dep. on at least B1 in (a)(i) and B1 in (a)(ii) |

