# Cambridge IGCSE

**Cambridge International Examinations**
Cambridge International General Certificate of Secondary Education

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**CAMBRDGE INTERNATIONAL MATHEMATICS**　　　　　　　　　　　　　　**0607/32**

Paper 3　(Core)　　　　　　　　　　　　　　　　　　　　　　　**May/June 2016**

MARK SCHEME

Maximum Mark: 96

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**Published**

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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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This document consists of **5** printed pages.

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**Abbreviations**

awrt      answers which round to
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 | Part Marks |
|---|---|---|---|---|---|
| 1 | (a) | (i) | Nine thousand four hundred and twenty seven | 1 | |
| | | (ii) | 9430 | 1 | |
| | (b) | (i) | 2 + 7 = 9  or  9 + 7 = 16 | 1 | |
| | | (ii) | 4 + 2 = 6  or  7 + 9 = 16 | 1 | |
| | | (iii) | 4 + 9 = 13  or  9 + 2 = 11  or  4 + 7 = 11 | 1 | |
| 2 | (a) | (i) | 24 | 1 | |
| | | (ii) | All heights correct and approximately equal width | 2 | **B1** for 3 heights correct |
| | (b) | (i) | 2 | 1 | |
| | | (ii) | More than 2 [children in a house]  oe | 1 | |
| | | (iii) | 54 | 1 | Within tolerance |
| | | (iv) | 60 | 2 | **B1** for $\dfrac{1}{4}$  soi |
| 3 | (a) | | 36 | 1 | |
| | (b) | | 80 | 2 | **M1** for 10 × 8 |
| | | | m$^2$ | 1 | |
| | (c) | | 15 | 3 | **M2** for  $\dfrac{12}{their(b)} \times 100$  soi  or **M1** for  $\dfrac{12}{their(b)}$  soi |
| | (d) | | 16 | 1 | |
| | | | 25 | 1 | |

| Question | | | Answer | Marks | Part Marks |
|---|---|---|---|---|---|
| **4** | **(a)** | | 1380 | 2 | **B1** for $62 \times 15$ soi by 930 |
| | **(b)** | | Disco : 36.6… rounded or truncated | 2 | **M1** for $\dfrac{1000 - 450}{15}$ soi |
| | | | Ballroom : 38.6… rounded or truncated | 2 | **M1** for $\dfrac{1000 - 575}{11}$ soi |
| | | | 38 | 1 | Final answer. Dependent on 4 scored. |
| **5** | **(a)** | | (3, 1) | 1 | |
| | **(b)** | | (0, 4) | 1 | |
| | **(c)** | | (–3, –2) correctly plotted | 1 | |
| | **(d)** | | (1.5, 2.5) oe | 1 | |
| | **(e)** | | Correct reflection in $y$-axis line joining (0, 4) and (–3, 1) | 1 | |
| | **(f)** | | Translation | 1 | |
| | | | $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$ | 1 | Accept 3 right, 1 down oe |
| **6** | **(a)** | **(i)** | Correct 2 by 4 pattern | 1 | |
| | | **(ii)** | 30 | 1 | |
| | **(b)** | **(i)** | 1 | 1 | |
| | | | –3 | 1 | |
| | | **(ii)** | $-4n + 25$ oe | 2 | **B1** for $-4n$ soi or $25 - kn$ $k \geqslant 1$ |
| **7** | **(a)** | | Obtuse | 1 | |
| | **(b)** | **(i)** | 70 | 1 | |
| | | **(ii)** | $ABC = 55$ soi | 1 | |
| | | | 10 | 1 | Dep. on $ABC = 55$ |
| | | | [because triangle $ABC$ is] isosceles | 1 | |

| Question | Answer | Marks | Part Marks |
|---|---|---|---|
| **8** **(a)** | $6a$ final answer | 1 | |
| **(b)** | $3x^3 - 5x$ final answer | 2 | **B1** for $3x^3$ or $-5x$ seen |
| **(c)** | 9 | 2 | **M1** for $x - 5 = 4$ <br> or for $2x = 8 + 10$ |
| **(d) (i)** | $t^7$ final answer | 1 | |
| **(ii)** | $5t^3$ final answer | 2 | **B1** for $\dfrac{20t^3}{4}$ or $\dfrac{5t^5}{t^2}$ seen |
| **9** **(a)** | 5 : 2 | 2 | **B1** for 60 : 24 oe |
| **(b)** | 2.5 hours or $2\frac{1}{2}$ hours <br> or 2 hours 30 minutes or 150 minutes | 2 | **M1** for $\dfrac{5}{12}$ or $\dfrac{6}{12}$ soi |
| **(c) (i)** | $6\frac{1}{2}$ or 6.5 or 6 hours 30 minutes | 1 | |
| **(ii)** | $5\frac{1}{2}$ or 5.5 or 5 hours 30 minutes | 1 | |
| **10** **(a)** | 3 points correctly plotted | 2 | **B1** for 2 correctly plotted points |
| **(b)** | Positive | 1 | |
| **(c)** | Line of best fit | 1 | Within tolerance |
| **(d)** | 3.4 to 4 | 1 | |
| **11** **(a)** | $63 \times \pi$ <br> 197.9… | M1 <br> A1 | |
| **(b)** | 28.4 or 28.36 to 28.38 | 4 | **M3** for $\dfrac{172 \times 198}{100 \times 12}$ oe soi <br><br> or **M2** for $\dfrac{172 \times 198}{12}$ or $\dfrac{198}{100 \times 12}$ oe soi <br><br> or **M1** for $172 \times 198$ or $\dfrac{198}{12}$ oe soi |

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| Question | Answer | Marks | Part Marks |
|---|---|---|---|
| **12** **(a)** | 13 500 | 3 | **M2** for $5850 + 0.05 \times 153000$ oe <br> or **M1** for $0.05 \times 153000$ oe |
| **(b)** | 12.4 or 12.41 to 12.42 | 3 | **M2** for $\dfrac{172000 - 153000}{153000}[\times 100]$ oe <br><br> or **M1** for $\dfrac{172000}{153000}[\times 100]$ oe |
| **13** **(a)** | 29 | 1 | |
| **(b)** **(i)** | 17 | 1 | |
| **(ii)** | 26 | 1 | |
| **(c)** **(i)** | $\dfrac{11}{29}$ isw oe | 1FT | Accept $\dfrac{11}{their(a)}$ |
| **(ii)** | $\dfrac{3}{29}$ isw oe | 1FT | Accept $\dfrac{3}{their(a)}$ |
| **(iii)** | $\dfrac{14}{29}$ isw oe | 1FT | Accept $\dfrac{14}{their(a)}$ |
| **14** **(a)** | 56.6 or 56.56 to 56.57 | 3 | **M2** for $90^2 - 70^2$ oe soi <br> or **M1** for $90^2 = x^2 + 70^2$ |
| **(b)** | 51.1 or 51.05 to 51.06 | 2 | **M1** for [sin …=] $\dfrac{70}{90}$ oe |
| **15** **(a)** | Correct graph | 2 | **B1** for correct shape <br> **B1** for correct position |
| **(b)** | (2, 3) | 1 | |
| **(c)** | Correct line | 2 | **B1** for approximately correct gradient <br><br> **B1** for approximately correct $y$-intercept |
| **(d)** | 5.24 <br> 0.764 | 1 <br> 1 | |

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