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

**MATHEMATICS** **0580/12**

Paper 1 (Core) **October/November 2016**

MARK SCHEME

Maximum Mark: 56

**Published**

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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 | Mark | Part marks |
|---|---|---|---|---|
| 1 | (a) | 6 | 1 | |
| | (b) | 2.5 | 1 | |
| 2 | (a) | $\frac{9}{100}$ | 1 | |
| | (b) | [0].3 | 1 | |
| 3 | | < <br> > <br> = | 2 | **B1** for two correct |
| 4 | (a) | Correct arrow | 1 | |
| | (b) | $\frac{2}{20}$ oe or 0.1 or 10% | 1 | |
| 5 | (a) | $6 + 12 \div (2 \times 3) = 8$ | 1 | |
| | (b) | 0.625 oe | 1 | |
| 6 | (a) | $\begin{pmatrix} 15 \\ -21 \end{pmatrix}$ | 1 | |
| | (b) | $\begin{pmatrix} 3 \\ -13 \end{pmatrix}$ | 1 | |
| 7 | (a) | 5 | 1 | |
| | (b) | 6 | 1 | |
| 8 | (a) | 24 or 48 or 72 or … | 1 | |
| | (b) | 53 or 59 | 1 | |
| 9 | (a) | 15 000 cao | 1 | |
| | (b) | $1.5 \times 10^4$ | 1FT | **FT** *their* **(a)** |

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| Question | Answer | Mark | Part marks |
|---|---|---|---|
| **10** | 25 | **2** | **B1** for 67 or 113 seen once in correct position<br>or **M1** for $a + 42 = 67$<br>or $a + 42 + 113 = 180$ or better |
| **11** | 21 | **2** | **M1** for $k - 8 = 13$ or $6k - 48 = 78$ or better |
| **12** | 58 | **2** | **M1** for $\frac{(13+16)\times 4}{2}$ or $4\times 13+\frac{1}{2}\times 4\times 3$ oe |
| **13** | 7.42 or 7.418 to 7.419 | **2** | **M1** for $\sin [32=] \frac{x}{14}$ or better |
| **14** | 262 | **3** | **M2** for $9 \times 6 \times 5 - 2 \times 2 \times 2$ oe<br>or **M1** for $9 \times 6 \times 5$ or $2 \times 2 \times 2$ oe |
| **15 (a)** | 0.98 oe | **1** | |
| **(b)** | 50 cao | **2** | **M1** for $2500 \times 0.02$<br>If zero scored, **SC1** for answer of 2450 |
| **16 (a)** | (7 , 1) | **1** | |
| **(b)** | –1.25 or $-\frac{5}{4}$ or $-1\frac{1}{4}$ | **2** | **M1** for rise/run |
| **17 (a)** | *B* and *D* | **1** | |
| **(b)** | 5.6 | **2** | **M1** for $\frac{h}{4.2}=\frac{12.8}{9.6}$ oe or correct scale factor |
| **18 (a)** | (9, 14) identified | **1** | |
| **(b)** | Positive | **1** | |
| **(c)** | Ruled line of best fit | **1** | |
| **(d)** | Speaking test score | **1FT** | **Strict FT** their straight line of best fit |
| **19 (a)** | 32 | **1** | |
| **(b)** | 150 | **3** | **M2** for $180-\frac{360}{12}$ or $\frac{180\times(12-2)}{12}$<br>or $\frac{(2\times 12-4)\times 90}{12}$<br>or **M1** for $\frac{360}{12}$ or $180 \times (12 - 2)$ or<br>$(2 \times 12 - 4) \times 90$ soi |

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| Question | Answer | Mark | Part marks |
|---|---|---|---|
| **20** | Common denominator 24 | **B1** | accept $k \times 24$ |
| | Two correct from $\frac{18}{24}$, $\frac{16}{24}$ and $\frac{3}{24}$ oe | **M1** | accept $\frac{18k}{24k}$, $\frac{16k}{24k}$ and $\frac{3k}{24k}$ |
| | $1\frac{7}{24}$ cao | **A2** | **A1** for $\frac{31}{24}$ or $\frac{31k}{24k}$ or $1\frac{7k}{24k}$ |
| **21 (a)** | $9p$ final answer | **1** | |
| **(b)** | $4q - 12$ final answer | **1** | |
| **(c)** | $5t(2 + 3t)$ final answer | **2** | **M1** for $t(10 + 15t)$ or $5(2t + 3t^2)$ |
| **(d)** | $[x =]\ 3$, $[y =]\ -2$ with supporting working | **2** | **B1** for one correct with working<br><br>If zero scored, **SC1** for 2 values satisfying one of the original equations or **SC1** if no working shown, but 2 correct answers given |

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