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

**MATHEMATICS (US)** **0444/11**

Paper 1 Core **May/June 2016**

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.

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
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** | 8(h) 52 (min) | **1** | |
| **2** | 12 | **1** | |
| **3** | [0].72 | **1** | |
| **4** | [0].00127 | **1** | |
| **5** | 60 | **1** | |
| **6 (a)** | 1 | **1** | |
| **(b)** | 5 | **1** | |
| **7 (a)** | Acute | **1** | |
| **(b)** | Pentagon | **1** | |
| **8 (a)** | 4, 5 | **1** | |
| **(b)** | They are the same oe | **1** | |
| **9 (a)** | 3 | **1** | |
| **(b)** | All three correct lines of symmetry drawn | **1** | |
| **10** | 540 | **2** | **M1** for $2000 \times 0.27$ or better |
| **11** | 144 | **2** | **M1** for finding a correct product of prime factors or correctly listing a minimum of 3 multiples of 36 **and** 48<br>or for answer $2^4 \times 3^2$ oe or $144k$ |
| **12** | 11 | **2** | **M1** for $-2 \times -7 - 3$ soi |
| **13** | $\frac{py}{q}$ final answer | **2** | **M1** for multiplying correctly by $p$<br>or **M1** for dividing correctly by $q$ |
| **14** | [$a$ =] 70°<br>[$b$ =] 40° | **2** | **B1** for each |

| Question | Answer | Mark | Part marks |
|---|---|---|---|
| **15** | 20 | **2** | **M1** for $\frac{15}{6}$ oe or $\frac{6}{15}$ oe or $\frac{8}{6}$ or $\frac{6}{8}$ |
| **16** | $\frac{18}{35}$ cao | **3** | **M2** for $\frac{6}{7}\times\frac{3}{5}$ or $\frac{18}{21}\div\frac{35}{21}$ oe<br>or **B1** for $\frac{3}{5}$ oe<br>or **M1** for $\frac{6}{7}\times$ *their* $\frac{3}{5}$ |
| **17 (a)** | 19 | **1** | |
| **(b)** | −2 | **1** | |
| **(c)** | 81 | **1** | |
| **18 (a)** | Negative | **1** | |
| **(b)** | 4 | **1** | |
| **(c) (i)** | Ruled line of best fit | **1** | |
| **(ii)** | 250 000 to 380 000 | **1** | |
| **19 (a)** | Correct ruled angle bisector with all correct arcs | **2** | **M1** for accurate angle bisector with no / wrong arcs<br>or for all correct arcs with no / wrong line |
| **(b)** | Correct ruled perpendicular bisector with two pairs of correct arcs | **2** | **M1** for accurate bisector with no / wrong arcs<br>or for two pairs of correct intersecting arcs with no / wrong line |
| **20** | Correctly equating one set of coefficients<br>Correct method to eliminate one variable<br>[$x$ =] −3<br>[$y$ =] 7 | **M1**<br>**M1**<br>**A1**<br>**A1** | <br><br>Dependent on first **M1** scored<br><br>If zero scored, **SC1** for<br>2 values satisfying one of the original equations<br>**or** 2 correct answers given but no working shown |
| **21 (a) (i)** | 0, 1 | **1** | |
| **(ii)** | 2 | **2** | **M1** for a correct rise ÷ run eg 4 ÷ 2<br>or for right-angled triangle marked on graph with run =1 and rise = 2 oe |
| **(iii)** | [$y$ =] $2x + 1$ final answer | **2FT** | **FT** *their* (a)(i) for $c$ and *their* (a)(ii) for $m$<br>**B1** for $y = 2x + c$ ( $c \neq 1$) or $y = mx + 1$ ( $m \neq 2$ or 0) |
| **(b)** | $y = 5x + b$ oe final answer | **1** | where $b \neq -3$ |

| Question | Answer | Mark | Part marks |
|---|---|---|---|
| 22 (a) | 672 | 2 | **M1** for 12 × 8 × 7 |
| (b) | 12 | 2 | **M1** for 648 ÷ (6 × 9) |
| (c) | 600 | 3 | **M2** for (5 × 10 × 24) ÷ 2 oe<br>or **M1** for (5 × 10 ) ÷ 2 or 25 nfww |