**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**

**International General Certificate of Secondary Education**

# MARK SCHEME for the May/June 2011 question paper

# for the guidance of teachers

## 0580 MATHEMATICS

**0580/13** 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 must be read in conjunction with the question papers and the report on the examination.

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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

| Qu. | Answers | Mark | Part Marks |
|---|---|---|---|
| **1 (a)** | 10 073 | **1** | |
| **(b)** | 13 + 20 – 2 = 31 | **1** | Accept 20 seen with answer 31 |
| **2 (a)** | 32 | **1** | |
| **(b)** | 3 | **1** | |
| **3** | 14 30 or (0) 2:30 pm | **1** | |
| | June 4th oe | **1** | |
| **4** | $2y(x - 2z)$ | **2** | **B1** for $y(2x - 4z)$ or $2(xy - 2yz)$ |
| **5 (a)** | < | **1** | |
| **(b)** | < | **1** | |
| **6** | $(x =) 3(y - 5)$ oe final answer | **2** | **M1** for correct first move<br>$y - 5 = \frac{x}{3}$ or $3y = x + 15$<br>**M1** for their correct second move |
| **7 (a)** | 0 | **1** | |
| **(b)** | 2 | **1** | |
| **8 (a)** | $\begin{pmatrix} -2 \\ 1 \end{pmatrix}$ | **1** | |
| **(b)** | Point marked at (1, –1) | **1** | |
| **9 (a)** | 21 | **1** | |
| **(b)** | 27 | **1** | |
| **10** | 10.7 or 10.69(……) www | **2** | **M1** for $\frac{AC}{12} = \cos 27$ or better |
| **11** | 7.94 or 7.937(…..) www | **3** | **M2** for $\sqrt{(12^2 - 9^2)}$ or<br>**M1** for $12^2 = x^2 + 9^2$ oe or better |

| | | | |
|---|---|---|---|
| **12 (a)** | $1.646 \times 10^7$ | **1** | |
| **(b)** | $3.32 \times 10^{-2}$ | **2** | **B1** for 0.0332 seen or $3.3 \times 10^{-2}$ as answer<br>or **B1** for $3.32 \times 10^k$ |
| **13 (a)** | 36 | **1** | |
| **(b)** | Correct working | **2** | **M1** for $\frac{7}{6}$ oe improper fraction<br>**M1** for $\frac{12}{21} = \frac{4}{7}$ oe or visible cancelling |
| **14 (a)** | (0).55 | **1** | |
| **(b)** | 250 | **2** | **M1** for 35 000 ÷ 140 or SC1 for figs 25 |
| **15 (a)** | 67 | **1** | |
| **(b)** | 0.00304 | **1** | |
| **(c)** | 56.35 | **1** | |
| **16** | ($x$ =) 5 ($y$ =) –1 | **3** | **M1** for consistent multiplication and add/subtract as appropriate.<br>**A1** for 1 correct answer. |
| **17 (a)** | Reflex | **1** | |
| **(b) (i)** | Drawing of a trapezium | **1** | Ignore labels and no arrows as long as a reasonable sketch. |
| **(ii)** | Trapezium | **1** | |
| **18** | 127.31 cao | **3** | **M1** for $120 \times 1.03^2$<br>**A1** for 127.308<br>If **M0** award **SC2** for 7.31 or 247.31 |
| **19 (a)** | 17 | **1** | Allow –17 |
| **(b) (i)** | –5.5 | **2** | **M1** for (–12 + –13 + –10 + 4 + 4 + –6) soi ÷ 6 |
| **(ii)** | –8 | **2** | **M1** for method of finding mid-value |
| **(iii)** | 4 | **1** | |
| **20 (a)** | Straight ruled line from (08 10, 200) to (08 30, 900) | **1** | |
| **(b)** | 5 | **1** | |
| **(c)** | 1.8 | **4** | **M1** for total distance ÷ total time<br>**M1** for converting time to hours<br>**M1** for converting metres to km |