

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
International General Certificate of Secondary Education

**MARK SCHEME FOR the November 2002 question papers**

**0580; 0581 Mathematics**

|                       |   |
|-----------------------|---|
| <b>0580/1; 0581/1</b> | Paper 1 (Short Answer Questions, Core), maximum raw mark 56     |
| <b>0580/2; 0581/2</b> | Paper 2 (Short Answer Questions, Extended), maximum raw mark 70 |
| <b>0580/3; 0581/3</b> | Paper 3 (Structured Questions, Core), maximum raw mark 104      |
| <b>0580/4; 0581/4</b> | Paper 4 (Structured Questions, Extended), maximum raw mark 130  |

These mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. They show the basis on which Examiners were initially instructed to award marks. They do not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the November 2002 question papers for most IGCSE, Advanced Subsidiary (AS) Level and Advanced Level syllabuses.



|       |                                    |            |
|-------|------------------------------------|------------|
| Notes | Mark Scheme                        | Syllabus   |
|       | IGCSE Examinations – November 2002 | 0580; 0581 |

### TYPES OF MARK.

- (i) M marks are for correct method applied to appropriate numbers.
- (ii) A marks are for accuracy, and depend on M marks. [M0A1 is **IMPOSSIBLE**]
- (iii) B marks are independent accuracy marks.
- (iv) S, P, C, Q marks are on graphs for scale, plotting, curve and quality.
- (v) Sc marks are for special cases, when full marks have not been scored.
- (vi) The symbol  $\surd^{\wedge}$  or “double tick” means correct work following an error.

Several places on the mark scheme have \* in the L. H. margin where “wrong” answers will score because they follow through “correctly” from a previous wrong answer. [ $\surd^{\wedge}$  means a further error.] Where the mark scheme indicates  $\surd^{\wedge}$ , the candidate may score from their correct follow through, or may score from the correct answer, as he may have started again and got it right, or left the correct answer on a calculator earlier.

### MISREADS.

These happen the first time a candidate copies a number from the question paper, and must be consistent. The penalty is -1 A or B marks. As M marks are available for misreads, it should not often apply.

### Useful ABBREVIATIONS.

- c.a.o  $\Rightarrow$  correct answer only
- c.s.o  $\Rightarrow$  correct solution only
- w.w.  $\Rightarrow$  without working
- w.w.w  $\Rightarrow$  without wrong working
- o.e.  $\Rightarrow$  or equivalent
- s.o.i.  $\Rightarrow$  seen or implied
- b.o.d  $\Rightarrow$  benefit of doubt.

### SCALE DRAWING.

Any **correct** method carries full marks **except** scale drawings in a calculation.

### ACCURACY.

The new IGCSE guidelines for questions **where there is no specific accuracy demand in the question itself** are as follows:

- (i) **More** than 3 sig. figs. in the answer but **correct** - no penalty.
- (ii) **Less** than 3 sig. figs. in the answer but **3 or more correct** s.f. seen in working - allow the marks.
- (iii) Lack of final zeros in 3 sig. fig. answers - OK e.g. 26 is acceptable for 26.0 **provided w.w.w.**

### METHOD MARKS.

- (i) Method marks are given for complete correct method, where arithmetic error or lack of completion has lost the final mark. In cases where the correct method is seen, but then followed by **another method step** to produce a wrong answer, the method mark is forfeited.
- (ii) In cases where **two different methods** have been attempted, the final answer indicates the candidate's choice of which method we mark.

**CAMBRIDGE**  
INTERNATIONAL EXAMINATIONS

**November 2002**

**INTERNATIONAL GCSE**

**MARK SCHEME**

**MAXIMUM MARK : 56**

**SYLLABUS/COMPONENT : 0580/1; 0581/1**

**MATHEMATICS**

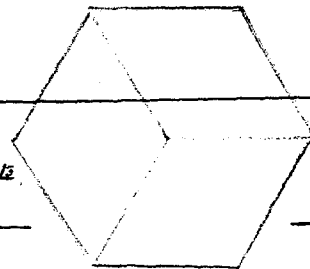
**(CORE)**



UNIVERSITY of CAMBRIDGE  
Local Examinations Syndicate

|        |                                    |            |       |
|--------|------------------------------------|------------|-------|
| Page 1 | Mark Scheme                        | Syllabus   | Paper |
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| Question Number | Marking Scheme Details   | Part Mark   |   |
|-----------------|--|---|---|
| 1.              | \$ 26.54   | 1   |   |
| 2.              | 47 minutes   | 1   |   |
| 3.              | 1057   | 2 <del>B+</del><br><del>BA</del> B1 for 52850. seen.                                  | 2 |
| 4.              | $\frac{6}{25}$   | 2 SC1 for $\frac{24}{100}$ seen   | 2 |
| 5.              | -3, -2, -1, 0, 1, 2.   | 2 SC1 for <del>five</del> correct and none wrong                                      | 2 |
| 6.              | (a) 90° (b) 126°   | 1+1   | 2 |
| 7.              | \$ 92  | 2 M1 for $\frac{1}{100} \times 80$ or 12 seen.  | 2 |
| 8.              | 11.3 people/km <sup>2</sup>  | 2 M1 for $\frac{3.164 \times 10^7}{2.8 \times 10^6}$ , implied by digits 113 seen     | 2 |
| 9.              | (a) -20 cm.<br>(b) (+)80 cm.   | 1<br>1  | 2 |
| 10.             | (Make template)<br>Correct & accurate drawing                              | 2 SC1 for right idea but inaccurate.  | 2 |
| 11.             | (a)(i) 43.8 seconds<br>(ii) 40 seconds<br>(b) 43.8 > 43.78 > 40            | 1<br>1<br>1 ✓   | 3 |
| 12.             | (a) 9 sides<br>(b) 26°   | 1<br>2  | 3 |
| 13.             | (a) 10<br>(b) $\left(\frac{T}{2}\right)^2$ or $\frac{T^2}{4}$              | 1<br>2  | 3 |
| 14.             | (a) 32°  | 3 M1 for $\tan \theta = \frac{139}{220}$ or complete long method.<br>A1 for 32. (...) | 3 |
| 15.             | (a) 1, 2, 4, 8, 16.<br>(b) 0.010204(0816...)<br>(c) The same sequence, o.e | 2<br>1<br>1   | 4 |



|        |                                    |            |       |
|--------|------------------------------------|------------|-------|
| Page 2 | Mark Scheme                        | Syllabus   | Paper |
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| Question Number | Marking Scheme Details  |   | Part Mark |    |
|-----------------|---|---|-----------|----|
| 16.             | Reflection of given curve accurately drawn. ( $\pm 2\text{mm}$ )  | 2 | 4.        |    |
|                 | Points (4, -10) and (-4, -10) plotted and connected up correctly. | 2 |           |    |
| 17. (a)         | 200   | 1 | 4         |    |
| (b)             | 693 (✓)   | 3 |           |    |
| 18. (a)         | 173   | 2 | 4         |    |
| (b)             | 183   | 2 |           |    |
| 19. (a)         | $8(5a - b + 4c)$  | 2 | 5         |    |
| (b) (i)         | $x = 16$  | 1 |           |    |
| (b) (ii)        | $y = 7$   | 2 |           |    |
| 20. (a)         | all 4 points correctly plotted.                                   | 1 | 5         |    |
| (b)             | $8 \text{ cm}^2$  | 2 |           |    |
| (c)             | $x = 2, y = -1$   | 2 |           |    |
|                 |   |   | TOTAL     | 56 |