EXAMINER TIPS FOR IGCSE MATHEMATICS (0580)

How to use these tips

These tips highlight some common mistakes made by students. They are collected under various subheadings to help you when you revise a particular topic. Many of the tips relate to June 2004 papers

General Advice

- Three figure **accuracy** is required in questions where no accuracy is specified unless money is involved when two decimal places are required
- To achieve three figure **accuracy** in your answer you need to have at least <u>four</u> figures in your working
- Make sure that your **calculator** is set to degree mode before you enter the examination.
- On the papers where you write your answer on the question paper, it is not acceptable to give a **choice** of answers on the answer line
- In **construction** questions you are expected to be able to find a locus using just a pair of compasses and a straight edge. It is not acceptable to measure with a ruler or protractor and draw in the answers. Arcs showing your construction method are required.
- Do not make any assumptions about lengths and angle sizes in **diagrams**. If a triangle is right angled, isosceles or equilateral then the question will say so.
- You need to be careful with the use of the **division** symbol, $a + b/2$ is not the same thing as $\frac{a + b}{2}$. The division line must cover everything that is to be divided by 2. The alternative is to use brackets to make your answer clear, as in $(a + b)/2$
- The question papers assume that you will have all the **equipment** listed on the front cover. Make sure that you have all the items on this list the day before you go into the examination. No allowance can be made if you do not have the correct equipment
- In **graph** questions it is very important that you make sure that you are reading the scales correctly.
- If you have to draw a **graph** make sure that you have a sharp pencil. Examiners will expect a reasonable level of accuracy which may not be possible with a very blunt pencil.
- If you have to draw a curved **graph** make sure that it is smooth. You should not join points on a curve with a series of straight lines
- You should NOT try to take any measurements from a diagram which has **NOT TO SCALE** printed on it, it has been drawn deliberately inaccurate
- In **probability** questions answers should be given in fractions or decimals. Answers in ratio form are NOT acceptable
- It is important that you have studied all of the syllabus. The two **question papers** that you take will usually cover every section of the syllabus.
- The question papers are set so that you have time to finish them and check your answers. It is important that you **read the question** carefully and not make instant assumptions about what you are being asked to do.
- You need to be careful with the use of the **square root** symbol. $\sqrt{x + 2}$ is not the same thing as $\sqrt{\dfrac{x + 2}{3}}$. The symbol must cover everything that needs to be square rooted.
- You are advised to show as much **working** as possible as marks are awarded for the working. Marks are given for the work that you do correctly, not subtracted for the work that you get wrong.

Paper 1 Tips

- A basic feature of **algebra** is that multiplication signs are unnecessary. bc means b multiplied by c.
- Questions which have **bold type** in them are giving a hint to take special care.
- If you are asked to **estimate** the size of a number then only 1 significant figure is usually required.
- A question that says **factorise** will require you to rewrite the expression using brackets
- Write as a fraction in its **lowest terms** means that you must cancel down the fraction as far as possible.
- In questions about the order of **rotational symmetry** you must give an answer which is a number. Answers in degrees will not be accepted.
- In **fraction** questions that have **show all your working** included, means that the question must NOT be done on the calculator. A correct answer with no working will not score any marks.
- When rounding numbers to a given number of **significant figures**, some zeros count and some do not. Please note that 0.564 is rounded to 3 sf and 5.60 is also rounded to 3 sf.
- In questions on **time**
    1. In the 24 hour clock system answers cannot be bigger than 2400. 2415 must be written as 0015.
    2. You must be very careful with decimal amounts of time. 7 hours 30 minutes is NOT written as 7.3hours. The correct value would be 7.5 hours as $30 \div 60 = 0.5$
    3. Answers in the 12 hour clock system must have am or pm included

Paper 2 Tips

- You should read all the **Paper 1 Tips** as any of these topics could appear on Paper 2.
- When **angles or lines** have to be drawn or measured examiners expect them to be accurate. Marks are often not awarded because of poor accuracy.
- Answers to **bearing** questions should always be given as 3 figure answers such as 078 ° or 265°
- There is a new topic in the syllabus called **Compound Interest** and this is quite different to Simple Interest. Your teacher will explain the difference. Care is needed because the questions can look very similar.
- When you are asked to draw a **locus** you must ensure that it is drawn long enough to answer the question. For example, the locus of all the points <u>inside</u> a shape must reach the edges of the shape.
- When a question requires an answer in **standard form** then a particular expression is required. An example of this is 6.23×10^8 , you should note that
    1. the multiplication symbol and the 10 are essential,
    2. the first number must have a decimal point after the first digit or else only one digit,
    3. no other forms of this such as 6.2310^8 are allowed.
- You should be careful to check whether a **travel graph** question is a distance-time graph or a speed-time graph as the methods needed in each are very different.

Paper 3 Tips

- You should read all the **Paper 1 Tips** as any of these topics could appear on Paper 3. You may also find some of the Paper 2 Tips useful as some of your topics can appear on Paper 2.
- Questions on this paper are written to test your understanding of Mathematics and parts of questions will depend on previous parts of the question. You must be careful that you are using any formula you have learnt appropriately.
- When you plot points for a **graph**
    1. the points may not always be on a line on the grid
    2. points on straight line must be joined with a ruler
    3. if you find one point that you have plotted does not lie on your line or curve, go back to your table and check your calculations. Do NOT make your line or curve fit that odd point.
- It is essential in many questions that you should know how your calculator will do calculations. For example, finding the **median of an even number** of values will require you to calculate sums such as $\underline{48 + 50}$ and it is possible that your calculator

2

will give an answer of 73 if you are not using it correctly. The correct answer is 49.

- **Parts of questions** are often connected. If you find an answer is unreasonable then it is likely that you made a mistake in an earlier answer that you have then used. You should have time to go back and check your earlier work.
- In questions with mixed **units**, you should usually convert all the quantities to the unit required in the answer before starting to do the questions.
- Do not give column **vector** answers as a row. (3 1) in not acceptable for $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$

Paper 4 Tips

- You should read all the **Paper 1, 2 and 3 Tips** as any of these topics could appear on Paper 4.
- There is a lot of information in each question and it is even more important here that you **read the question** carefully, use the numbers given and answer the question that has been written on the question paper as a large number of marks are awarded in each question.
- This is the only paper where you do not answer on the question paper. It is very important that you **set your work out clearly** so that the examiner is able to read what you have written. **Do not** write answers to different questions side by side. It is particularly important that you show ALL your working otherwise you will be awarded very few marks.
- In **cumulative frequency** graphs the top of the graph and the top of the vertical scale are not always the same number. You need to use the number from the top of the graph in your calculations. If you are in doubt about which axis to read your answer from, then look at the labels on the axes, they will match the units or quantity given in the question.
- When asked to **describe transformations** make sure that you are using the correct terms. Examiners will not mind if you cannot spell the word correctly but you must use the correct words.
    1. If the correct term is rotation then you should give the centre and the angle.
    2. If the correct term is reflection then you should give the mirror line.
    3. If the correct term is translation then you should say how much it moves in each direction.
    4. If the correct term is an enlargement then you should give the centre and scale factor.
    5. If the correct term is a stretch then you should give the direction and scale factor.
- Most **graphs** are well behaved, smooth and do not do unexpected things. In particular all quadratic graphs with a formula such as $y = 2x^2 - 3x - 4$ have the same shape whatever the numbers in the formula. They are just in different places on the grid.

About the Examiner

Colin Nye
Colin Nye has been an examiner with UCLES and CIE for over 25 years marking N, O, GCSE, IGCSE and A level papers. He is the Principal Examiner for Paper 2. As well as examining Colin has been teaching Mathematics in the UK for over 25 years. He has been Head of Mathematics and Deputy Head teacher during this time.