

## Recommendations to Teachers and Students

- Use the syllabus as the main reference document in preparing for the examination. (Find your syllabus at [www.ncca.ie/projectmaths](http://www.ncca.ie/projectmaths)). The examinations will reflect the aim, objectives, and learning outcomes of the syllabus, and will support the development of the key skills of the senior cycle curriculum.
- Remember that the learning outcomes at Ordinary Level are additional to those at Foundation Level, and that those at Higher Level are additional to those at Ordinary and Foundation levels. Accordingly, give due regard to the outcomes listed for the level(s) below the one you are dealing with. Similarly, as the Leaving Certificate syllabus builds on the knowledge and skills developed at Junior Certificate, ensure that you can recall and apply those skills too.
- Try to develop understanding of all mathematical methods employed. Skills will transfer much more readily to unfamiliar scenarios when they are based on understanding. Furthermore, you may be explicitly asked to explain or justify the methods you employ.
- Use the resources provided by the Project Maths Development Team and the NCCA. The examinations are designed on the assumption that candidates have engaged with these activities or ones of a similar type. These materials also help in interpreting the syllabus.
- Engage in activities that draw together skills and understanding from more than one area of the course.
- Be prepared for the unfamiliar. A high level of achievement in mathematics is characterised by the ability to bring insightful knowledge and well-developed skills to bear on new problems. It is not helpful to try to second-guess every conceivable type of problem that might be encountered, in order to learn off the correct method for doing each. It is more productive – both for the achievement of the objectives of the syllabus and for success in the examinations – to develop generic problem-solving skills and to have had plenty of experience in engaging with tasks that vary considerably in their level of familiarity. Teachers should make a concerted effort to expose students to problems that are not like ones they have encountered before, in order to develop their problem-solving skills.
- Ensure that basic skills are not neglected. These too are specified as syllabus outcomes and will be tested directly. Furthermore, problem solving is only possible when the basic tools needed to address the problems are readily available. Fundamental skills in arithmetic, algebra, and geometry need to be continually attended to.
- Ensure you understand the concept of a mathematical proof, that you can use valid reasoning to justify conclusions, and that you can identify and rectify deficiencies in arguments presented

by others. Ensure also that you are able to reproduce whatever formal proofs are specified in the syllabus as being directly examinable.

- Be familiar with the terminology and language of the subject. When engaged in discussion and exploration, use the correct terms and seek clarification of any words that are unfamiliar.
- Read questions carefully. Information on examination papers is concise, careful, and deliberate, and it is easy to miss or misread a critical piece of information. Give careful consideration to the question before you begin answering it.
- Use common sense when thinking about questions, and reflect on your answers. If an answer seems unreasonable, this may assist in locating a mistake. Knowledge and skills that have been acquired outside the mathematics classroom are valid and useful.
- Do not be put off or upset if a problem is not working out. Some problems are intended to be challenging. When an examination task is non-routine, then you will be well rewarded for exploring the problem in a reasoned way and applying plausible lines of attack, even if you do not ultimately fully solve the problem.
- Show all your work. Partial credit will be awarded for any substantive work of merit.
- Communicate your thinking as clearly as possible, whether you are solving a mathematical problem or offering a text-based answer.
- Even if you are not asked to draw a diagram, it can often be a very helpful first step. You may gain some credit for the diagram. More importantly, the way forward with the problem very often becomes much clearer when the given information is presented on a diagram.
- Attempt all parts of the questions you are doing. The examiner will always search for merit in what you write. But if you write nothing, you cannot get any marks.
- If you make more than one attempt at a question, make it clear which attempt is your final version. However, you should also ensure that your other attempts remain legible. In most circumstances, you will get credit for your best attempt, even if it has been cancelled in favour of another.
- Ensure that you are thoroughly familiar with your own calculator and capable of using it efficiently and intelligently. Make sure that your calculator conforms to the rules governing the use of calculators in the State examinations, and that it has a sufficient range of features to meet your needs during the examination.

