

Leaving Cert Pass Maths Paper 1

Must Know File:

Question 1 Arithmetic

(a) Must be able to find Compound Interest (b) Must be able to find the cost price when given the percentage profit . (c) Must be able to work out a persons take home pay if given their gross pay ,tax free allowance and tax rates . (d) Must be able to handle numbers written in Scientific notation . (e) Must be able to deal with % errors . (f) a knowledge of working with ratios is a must

Question 2 Algebra :

This is the first of two questions on Algebra : (a) Must be able to solve an inequality (b) Must be able to solve simultaneous equations , either two linear equations or a Linear and a quadratic . (c) Must be able to write a given expression in index form ,and solve an index equation .

Question 3 : Algebra :

(a) Must be able to write one thing in terms of another . (b) Must be able to use the factor theorem . (c) Must be able to answer questions on the graph of a quadratic function . Or given a quadratic function to find the coefficients of x and the independent term .

Question 4 : Complex Numbers

(a) Must be able to add,subtract,multiply ,divide complex numbers ,find the modulus and the conjugate . (b) Must be able to solve a Quadratic Equation which has complex roots,(use the roots formula and don't forget that $i = \sqrt{-1}$. (c) Must be able to plot Complex numbers on an Argand diagram . (d) Must be able to solve linear equations involving Complex numbers . (REALS = REALS , $i = i$)

Question 5 : AP's and GP's:

(a) Must know the formulae for the T_n and S_n of an Ap and be able to find **a** and **d** using simultaneous equations . (b) Must know that in all **AP's** $T_2 - T_1 = T_3 - T_2 = d$. (c) Must be able to find a and d if given S_n . (d) Must know the formulae for **T_n** and **S_n** of a **GP** . (e) Must know that in all GP's that $T_2/T_1 = T_3/T_2 = r$. Must be able to find a and **r** if given two terms of a GP. (this is the easiest question on paper 1)

Question 6: Periodic Functions

(a) Must be able to find the period and range when given the graph of a function . (b) **Calculus** (i) Must be able to find the **Max and Min** of a cubic function . (c) **Graph** Must be able to sketch the graph of the cubic function in part b for certain values of x . You will use the results of part b to help you draw your graph . (this can be a messy question)

Question 7: Calculus :

(a) Must be able to differentiate from first principals . (b) Must be able to use (i) the product (ii) The quotient (iii) The chain rules for differentiation . (c) Must be able to deal with problems involving distance speed ,and time using differential Calculus .

Question 8 : Functions (a) Must be able to find $f(x)$ given different values for x . (b) Must be able to solve equations of the form $f(x) = a$. (c) Must be able to sketch the graphs of functions of the **type $f(x) = 1/(x + 3)$** . A cubic function came up in 1999 this was a bit different .

General Comment

(a) Questions do not have to be done in any particular order, do the easiest questions first .
(b) If your algebra is not good **use your calculator for all situations involving minus**

signs ,use **the roots formula** $(\frac{-b \pm \sqrt{b^2 - 4ac}}{2a})$ to solve quadratic equations . (c) It is essential

that you pick your questions carefully. (d) **Know your formulae** and write them down as soon as you get into the exam hall . **Do all graphs on graph paper** and remember the best way to scale a graph is to use 10 small squares between each number on the X axis and 5 between each number on the Y axis . (e) Remember how the **marking scheme works (a, = 10 marks, b = 20 marks , c = 20 marks)** . All questions carry attempt marks which are awarded for any step taken in the right direction . The attempt marks are usually 1/3 of the marks for the particular section . Errors are punished as follows -1 for a slip (a small arithmetical error) -3 for a blunder a more serious technical error . **If an error is repeated in a question it is only punished once** (you only lose 3 marks not 6) . Graphs are marked as follows 2 marks for each correct couple and one mark for plotting the couple . In questions involving formula , the formula filled in correctly will get most of the marks . Diagrams are useful and may merit some marks if they show added information not given in the question and constitute a step in the right direction .

Leaving Cert ordinary Level Paper 1

What Questions should I do?.

The Problem with Paper 1 is the lack of " **dead cert come up every year type questions**" . This suits nobody except some students who have dropped from higher maths . So what is the best approach ? This depends really on your ability in Algebra .

So how do you know if your algebra is good ?

Ask yourself can you Solve (1) **Simultaneous equations** ie. equations of the form $3x + 4y = 10$

$$5x - 7y = 3$$

(2) **Quadratic Equations** ie equations of the form

$3x^2 - x - 2 = 0$ and get the answer correct **every time** (using factors) . Or you must use the

roots formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ but get the correct result **every time** . The important words

here are every time !

(3) **Solve simultaneous equations of the form** $x - 3y = 10$
 $x^2 + y^2 = 10$

(4) **Solve equations of the form** $2x^3 + 3x^2 - 5x - 6 = 0$.

If the answer **is yes, to all 4 questions** then Paper 1 will be no problem you should attempt the following questions for a best result Q2,Q3,Q4,Q5,Q7,Q6 and If you have time try Q1 and Q 8 . I know most people will tell you to start with Q1 , but I believe if you are good a Algebra **flaunt it !** getting Q2 and Q3 done will give you great confidence to continue .

Ok if the answers to the 4 questions above are yes to (1) and (2) but no or maybe to (3) and (4) . Then you should try the following approach . **do Q7 Differential Calculus** (first) the format for this question has not changed in 6 years .

Do Q4 (complex numbers) next again very predictable . Try Q5 AP's and GP's) next very little knowledge required here.

So three down three to go , Q1 should be done next followed by Q2 and Q3 , you will at least get the part a of these done

Advice on how to maximise your Marks !

(1) Before going into your exam have a plan of which questions you are going to attempt and stick to it!

This means that these questions must have been practiced off the face of the Earth using previous exam papers It also means that if formulae are required you must know them !Use 1995-2000 don't bother with the sample papers they are only there to make the books look bigger !

(2)when you go into the exam write down the formulae you need for this paper (only necessary if you have a bad memory , but it does calm the nerves). Go straight to the first question you intend doing and read it carefully .

now try part (a) it usually takes 2-3 minutes (time allocated is 5 minutes)