Leaving Cert Ordinary Level Maths

Section	What I need to know/be able to do
1 & 2 - Algebra	Add, subtract and multiply terms Solve linear equations involving multiplication and fractions Plot linear inequalities on numbers lines Solve simultaneous equations Rearrange equations Factorise expressions using HCF, grouping, guide number and difference of two squares methods Solve quadratic equations using the -b formula Apply indice rules Simplify surds
3 - The Line	Plot points on a cartesian plane Find the midpoint of two points Find the slope between two points using rise/run and a formula Find the distance between two points Calculate the equation of a line using a slope and a point Graph lines on a cartesian plane

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	Find the point of intersection of two lines graphically and using simultaneous equations Find the area of a triangle
4 - The Circle	Find the equation of circles with centre (0,0) Find the equation of circles with centre NOT (0,0) Determine whether points are inside, on or outside circles using algebra Find the point of intersection between circles and lines
5 - Complex Numbers	Plot complex numbers on an argand diagram Find the conjugate of a complex number Find the modulus of a complex number Add, subtract, multiply and divide complex numbers
6 - Trigonometry	Apply Pythagoras' theorem to calculate missing sides in right angled triangles Recognise the sin, cos and tan ratios and what sides they use as part of their ratio (sin = o/h etc.) Find missing sides and angles using sin, cos and tan in right-angled triangles Find the area of a triangle using trigonometry (A = 1/2abSinC) Use both the Sine and Cosine rule to find missing sides and angles in non-right angled triangles
7 - Probability	Find simple probabilities Use the words 'and' and 'or' to find the probability of two events

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	Find probabilities using Venn diagrams Use the multiplication rule to find the probability of two events Outline probability events on tree diagrams Apply the fundamental principal of counting to determine the number of outcomes of two or more events Calculate how many ways certain objects can be arranged
8 - Perimeter, Area & Volume	Calculate the perimeter and area of triangles and quadrilaterals Find the area and perimeter (circumference) of circles and sectors Find the volume (using formulae) of cuboids, cylinders, cones and spheres Use the trapezoidal rule to find the area of irregular shapes
9 - Statistics	Distinguish between categorical (nominal and ordinal) and numerical (discrete and continuous data) Calculate the mean, mode, median and range of sets of data. Calculate the inter-quartile range of sets of data Calculate the mean of frequency tables and of grouped frequency tables (using mid-interval values) Calculate the standard deviation of a set of data by hand and by using your calculator Use the empirical rule to determine what sets of values 68%, 95% and 99% of values lie within 1,2 and 3 standard deviations of the mean Calculate the margin of error

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	Construct a 95% confidence interval Perform a hypothesis test at the 95% confidence interval Display data using histograms, bar charts, pie charts, stem and leaf diagrams and scatter plots Describe the shape of data distribution Calculate correlation coefficient and describe correlation in words
10 - Patterns & Sequences	Define what is meant by a sequence and term Find the general term of an arithmetic sequence Tn = a + d(n-1) Solve simultaneous equations to find the value of a and b when given terms in a sequence Define what is meant by a series Find the sum of an arithmetic series using the sum of a series formula Recognise what a quadratic sequence is Find the general form of a quadratic sequence using simultaneous equations
11 - Applied Arithmetic	Find the percentage of numbers. This includes being able to find 100% of a number if given 40% or 123% of the number. Always find 1% and then multiply by 100 Calculate currency conversions using exchange rates Calculate income tax using standard rate and higher rate of tax Calculate USC and PRSI

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	Use the compound interest formula to find the value of a sum of money after a number of years Calculate AER
12 - Geometry	Calculate missing angles using vertically opposite, corresponding and alternate angles Prove triangles are congruent using SSS,SAS,ASA & RHS Find the area of triangles Find the lengths of missing sides in similar triangles using scale factors Find the lengths of missing lengths and sides in triangles within circles
13 - Functions and Calculus	Define what is meant by a function Substitute values into functions Graph linear, quadratic, cubic and exponential functions Analyse graphed functions to find points of intersection with x and y axis, maximum and minimum points, turning points, where graphs are positive and negative etc. Find the slope of a line using differentiation Find the slope of a curve at a given point using differentiation Find the equation of tangent lines to a curve Find turning points of curves and classify them as max and min using calculus Apply rates of change

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