

Leaving Cert Ordinary Level Paper 2 - What you really need to know!

Marking Scheme: Part (a) 10 marks,
Part (b) 20 marks,
Part(c) 20 marks.

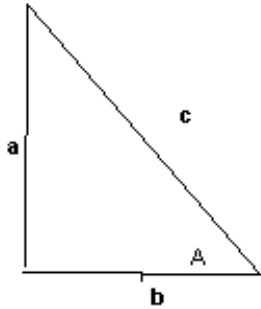
For starters...

- The attempt for each part of a question is 1/3 of the marks for that part of the question.
- One of the most popular topics examined on leaving cert Ordinary Level Maths is Trigonometry.

How do we attack a Trigonometry question?

- Before starting any question on Trigonometry (a) ensure that your calculator is in degree mode, deg should be on the screen. If deg is not there, press the DRG button (Sharp) until deg appears on the screen. (b) Calculators work in degrees, so if the angle is given to you in degrees and minutes you must tell the calculator this by using the DMS button. It is best just to work in degrees.

- Many questions are based on the right-angled triangle, and page 9 of the maths tables.

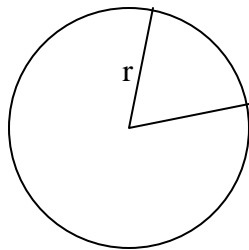


$$\sin A = \frac{\text{opposite}}{\text{hypotenuse}} = \frac{a}{c} ; \therefore \cos A = \frac{\text{adjacent}}{\text{hypotenuse}} = \frac{b}{c} ; \therefore \tan A = \frac{\text{opposite}}{\text{adjacent}} = \frac{a}{b}$$

$$\sin(A + B) = \sin A \cos B + \cos A \sin B, \cos(A + B) = \cos A \cos B - \sin A \sin B$$

- The above information was all that was needed to answer all of the following Questions (all taken from Paper 2) 1999Q5a, 1998Q5b, 1997Q5b, 1996Q5b, and 1995Q5a

Length of an arc Area of a sector



- The following two formulae will sort out anything that can be asked in this area.

$$\text{Length of an arc} = \frac{A}{360} 2\pi r$$

$$\text{Area of a sector} = \frac{A}{360} \pi r^2$$

- Questions based on the above formulae were asked in 1999Q5b, 1998Q5a, and 1994Q5a

Three Important Formulae (all on page 9 of the tables)

Area of a Triangle = $\frac{1}{2}ab\sin C$

The Sine Rule $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

The Cosine Rule $a^2 = b^2 + c^2 - 2bc\cos A$

- These three formulae will generally sort out most of the part "c's" that have been asked in the past number of years.

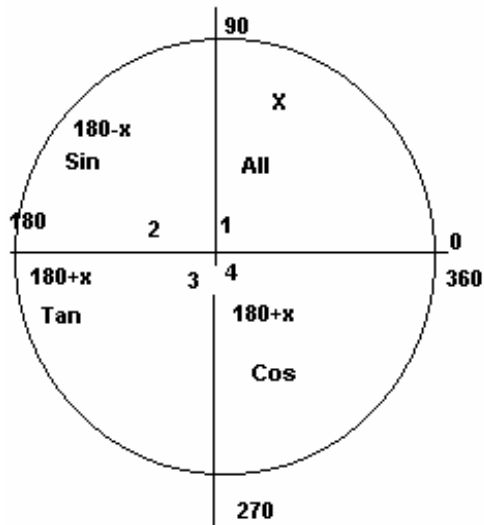
Students often ask when do I use the Sine Rule? , Or when do I use the Cosine rule?

- A simple answer is use the Sine Rule when you know more angles than sides; use the Cosine rule when you know more sides than angles. The other thing to do is to always let a (if it's a side) or A (if it's an angle) be equal to the thing you are looking for.

Solving Trig Equations

Take questions of the type "Solve for A if $\sin A = - .5$ ".

- This type of equation has two solutions between 0 and 360 your calculator on it's own will only give you one solution.
- To find the two solutions requires you to use the Unit Circle.



- This type of question is answered as follows:
 1. 2nd function Sine .5 (not -.5) = 30 (x) degrees.
 2. Ask yourself two questions (1) where is Sine negative? Answer 3rd and 4th quadrants. (2) What does it look like? Answer 180+x, 360- x, so our answer is 210 degrees and 330 degrees.
- The above method is only required if you are asked **for two solutions** for the given equation, if only one solution is required just use the 2nd function key on the calculator.