



### What equations do I need to know for the Edexcel IGCSE physics exam for the Waves topic?

In the list below the equations are grouped into the ones that need learning for IGCSE Edexcel double award (4SD0) and Physics only specification (8463).

There are no equations in this topic that are paper 2 only so all students of IGCSE Edexcel Physics need to memorize all the equations. The AQA specification unlike Edexcel IGCSE does not require calculations of the critical angle or refractive index but does requires knowledge of ray diagrams with both concave and convex lenses. This is one of the specifications with the largest variation between the different exam boards.

Equations to Learn	
wave speed = frequency $\times$ wavelength	$v = f \times \lambda$
refractive index = $\frac{\sin \text{incident angle}}{\sin \text{refracted angle}}$	$n = \frac{\sin i}{\sin r}$
sine critical angle = $\frac{1}{\text{refractive index}}$	$\sin C = \frac{1}{n}$
refractive index = $\frac{\text{speed of light in a vacuum}}{\text{speed of light in that substance}}$	$n = \frac{c}{v}$
Equations given in exam	
frequency = $\frac{1}{\text{time period}}$	$f = \frac{1}{T}$