

# Integrated Mathematics 2 – Key Objectives | Trigonometry Unit

This Trigonometry Unit will encompass 3 MAJOR concepts – all of which will be new to you, but will build upon your previous work with Congruent & Similar Triangles from Grade 9. The MAJOR concepts are: (1) Trigonometry & Periodic Functions, (2) Trigonometry & Triangles and (3) Analytical Trigonometry – The Connection between Periodic Functions & Triangles. These major concepts will be continually revisited in your IB Math courses next year, so it is important to understand these concepts and master the required skills.

## (A) Trigonometry & Periodic Functions

- Given periodic data, use GDC to develop trigonometric/sinusoidal models, evaluate the fit and use the model to make predictions. **(N)**
- Use trigonometric graphs & the GDC to solve problems & equations set into practical contexts. **(N)**
- Know and apply the terms "amplitude" and "period" and "equilibrium axes" as it pertains to the context of a periodic phenomenon and as it pertains to the graph of sinusoidal functions. **(N)**
- Apply and identify individual transformations (horizontal and vertical shift, horizontal and vertical dilations, reflections) to sine & cosine functions in order to fit a function to a data set and in order to understand graphs of these transformed functions. **(R & N)**

## (B) Trigonometry and Triangles

### a. Right Triangle Trigonometry:

- Use the sine, cosine & tangent trigonometric ratios to solve for a missing side of a triangle. **(N)**
- Use the sine, cosine & tangent trigonometric ratios to solve for a missing angle of a triangle. **(N)**
- Apply trigonometric ratios to a variety of practical applications. **(N)**

### b. Non Right Triangle Trigonometry:

- Use the Law of Sines & Cosines to solve for a side or an angle. **(N)**
- Apply the Law of Sines & Cosines to a variety of practical applications. **(N)**
- Find the area of a non-right triangle. **(N)**

## (C) Analytical Trig – The Connection Between Periodic Functions & Triangles

- Draw angles in standard position. **(N)**
- Find co-terminal angles. **(N)**
- Given a special angle, determine the corresponding unit circle coordinates. **(N)**
- Given unit circle coordinates, determine the corresponding special angle. **(N)**
- Find the sine, cosine or tangent of a special angle using unit circle coordinates. **(N)**
- Given an equation, find all special angle solutions between  $0^\circ$  and  $360^\circ$ . **(N)**