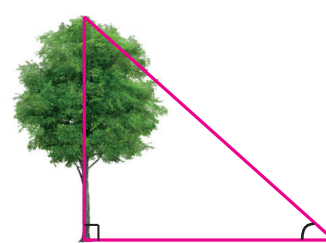
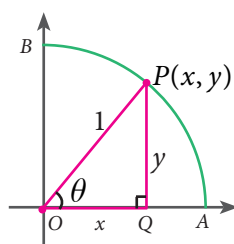


6



TRIGONOMETRY

There is perhaps nothing which so occupies the middle position of mathematics as Trigonometry.- J. F. Herbart



Leonhard Euler
(AD (CE) 1707 - 1783)

Euler, like Newton, was the greatest mathematician of his generation. He studied all areas of mathematics and continued to work hard after he had gone blind. Euler made discoveries in many areas of mathematics, especially Calculus and Trigonometry. He was the first to prove several theorems in Geometry.



Learning Outcomes



- To understand the relationship among various trigonometric ratios.
- To recognize the values of trigonometric ratios and their reciprocals.
- To use the concept of complementary angles.
- To understand the usage of trigonometric tables.

6.1 Introduction

Trigonometry (which comes from Greek words **trigonon** means **triangle** and **metron** means **measure**) is the branch of mathematics that studies the relationships involving lengths of sides and measures of angles of triangles. It is a useful tool for engineers, scientists, and surveyors and is applied even in seismology and navigation.

Observe the three given right angled triangles; in particular scrutinize their measures. The corresponding angles shown in the three triangles are of the same size. Draw your attention to the lengths of “opposite” sides (meaning the side opposite to the given angle) and the “adjacent” sides (which is the side adjacent to the given angle) of the triangle.