

Activity 118. Read the passage. In pairs, discuss the questions in the box.

The word “trigonometry” comes from the Greek words “trigonon” (“triangle”) and “metron” (“to measure”). Contrary to its name, the theory of trigonometry (informally abbreviated to “trig”) is best motivated as a theory about circles, not triangles. (This, in fact, matches the historical development of the subject.) Trigonometry is the branch of mathematics concerned with specific functions of angles and their application to calculations. There are six functions of an angle commonly used in trigonometry. Their names and abbreviations are sine (sin), cosine (cos), tangent (tan), cotangent (cot), secant (sec), and cosecant (csc). These six trigonometric functions in relation to a right triangle are displayed in the figure. For example, the triangle contains an angle A, and the ratio of the side opposite to A and the side opposite to the right angle (the hypotenuse) is called the sine of A, or sin A; the other trigonometry functions are defined similarly. These functions are properties of the angle A independent of the size of the triangle, and calculated values were tabulated for many angles before computers made trigonometry tables obsolete. Trigonometric functions are used in obtaining unknown angles and distances from known or measured angles in geometric figures. Trigonometry developed from a need to compute angles and distances in such fields as astronomy, mapmaking, surveying, and artillery range finding. Problems involving angles and distances in one plane are covered in plane trigonometry. Applications to similar problems in more than one plane of three-dimensional space are considered in spherical trigonometry.

(from Encyclopaedia Britannica)

1. What is trig?
2. Does the etymology of the word “trigonometry” reveal its meaning?
3. What are the six common trigonometric functions?
4. What is the use of the Greek letter θ (theta) in trigonometry?
5. What are the application areas of trigonometry?