

Review of trigonometry

The standard definition of the sine and the cosine of an **angle** is as follows:

Place the angle in a coordinate plane with the vertex at the origin and one side of the angle, the **initial** side, along the positive horizontal axis. The other side of the angle is called the **terminal** side. (The angle is considered as a rotation from the initial side to the terminal side; the angle is positive if this rotation is counterclockwise, and the angle is negative if the rotation is clockwise.)

To define the sine and cosine of this angle (let's call it θ), choose a point (other than the origin) (H, V) on the terminal side of the angle; so H and V are, respectively, the horizontal and vertical coordinates of this point. Let R be the distance of this point from the origin (this can be calculated in terms of H and V using the Pythagorean Theorem). **DRAW A PICTURE TO ILLUSTRATE.**

Then, by definition, $\sin(\theta) = V/R$ and $\cos(\theta) = H/R$.

Now, to define the sine and the cosine of a **real number**, say x , we proceed as follows: We construct an angle θ of x radians. Then $\sin(x) = \sin(\theta)$ and $\cos(x) = \cos(\theta)$.