

SOEN 6011 Problem 1 Anqi Wang 40057695 F8 B(x, y)  
GitHub Anqi Wang's individual repo address: <https://github.com/AnqiAngelineWang/SOEN6011.git>  
GitHub group repo address: <https://github.com/SinglaAnkur/SOEN6011.git>

Explain the function  $B(x,y)$

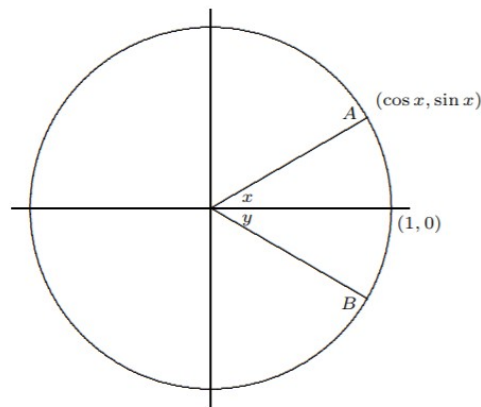
$B(x,y)$  is a function contains two real variables  $x$  and  $y$ . It could not be shown in a finite sequence among algebraic operations. Thus, it will not provide a specific answer, like it will never receive a fix answer 0. The formation of  $B(x,y)$  are varies based on  $x$  and  $y$  variables. It may or may not be a polynomial equation.

Domain: Any set of rational number

Co-domain: Any real number  $(-\infty, +\infty)$

Characteristics

This function needs two variables  $x$  and  $y$  to come up with a solution. The possibilities of the function results are various. It may not be symmetry in a specific range, but it could also possibly show the monotone increasing trend in a long period. Whats more, it can be considered as a set  $(x, y)$ , or a coordinate point  $(x, y)$  on a 2D graph. For example, there is a unit circle in the  $xy$ -plane, the graph can be like:



The  $x$  and  $y$  are angles of the circle centre. The coordinate  $A(\cos x, \sin x)$  are functions  $\cos x$  and  $\sin x$ . This reveals that the function may not need to follow monotone trend. Besides, the answer can also be obtained through mathematics triangle definitions:  $(\sin x)^2 + (\cos x)^2 = 1$ , such that the hypotenuse of the unit triangle is 1.

Reference

Stewart, J. (2008). Transcendental Functions [Abstract]. Calculus, 6, 71-73. Retrieved July 7, 2019.