F2:tan(x)

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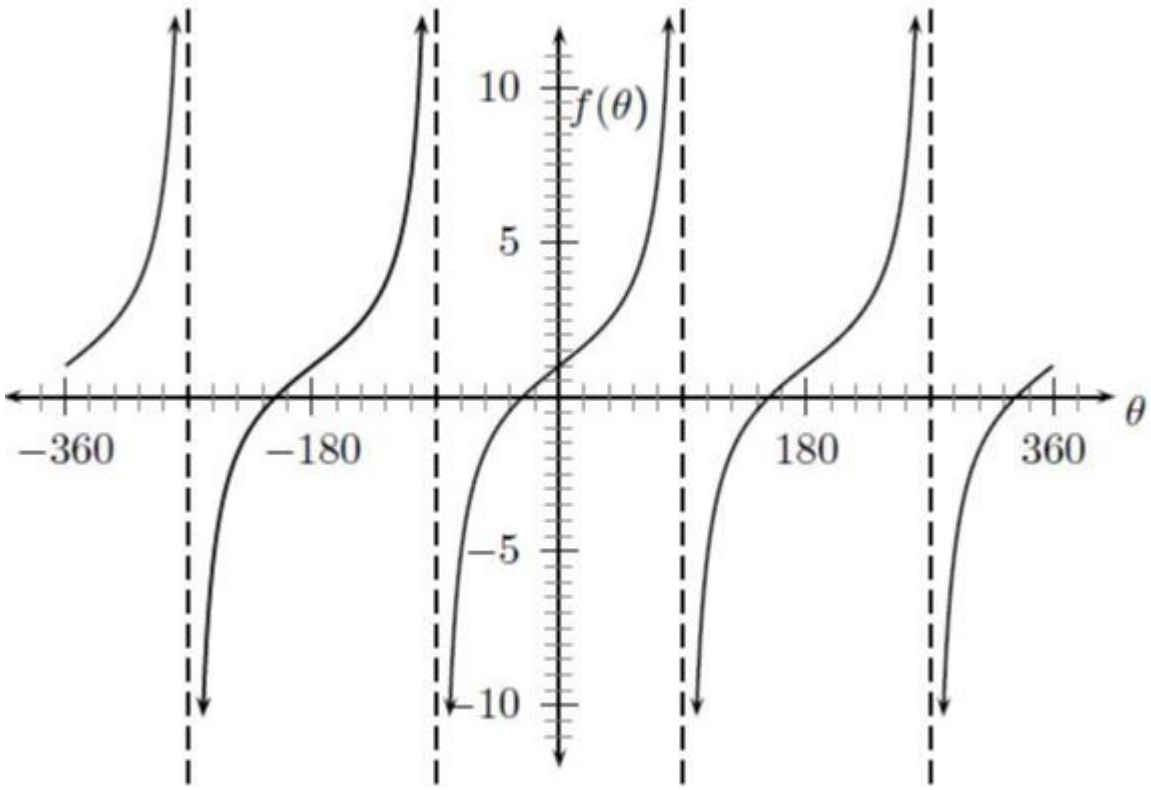
1 Introduction

For real arguments, the Tangent function can defined as: the tangent of an angle in a right-angle triangle is the ratio of the length of the opposite leg to the length of the adjacent leg. tan(x) is a periodic tangent function. Also, Tangent function is basically defined by:

$$\tan x = \frac{\sin x}{\cos x}$$



2 Domain

$$(\ \Theta\ ,\ \Theta \neq k\frac{\pi}{2},\ \textit{where k is an odd integer})$$

3 Co-Domain

$$(-\infty, \infty)$$

4 Characteristics

- Period of tangent function is π.
- Vertical Asymptotes: $x = \frac{\pi}{2} + k\pi$, where k is an integer.
- Tangent is an increasing function in every interval between any of two successive vertical asymptotes, i.e $f(x1) < f(x2)\ for\ all\ x1 < x2$.
- Tangent is an odd function with mirror symmetry since $\tan(-x) = -\tan(x)$ and it's graph is symmetric with respect to origin.
- Zeroes of tangent are $n\pi$ for $n \in Z$, which are same as that of sine function because tangent function will be zero whenever sine function is zero.