Note Title 18/09/2018

Trig function

$\sin(0) = 0$

$\cos(0) = 1$

$\cos\left(x - \frac{\pi}{2}\right) = \sin(x)$

$\cos(A+B)$

$= \cos A \cos B - \sin A \sin B$

$\cos\left(x - \frac{\pi}{2}\right)$

$= \cos(x)\cos\left(-\frac{\pi}{2}\right)$

$\quad - \sin(x)\sin\left(-\frac{\pi}{2}\right)$

$= \cancel{\cos(x)(0)}$

$\quad - \sin(x)(-1)$

$= \sin(x)$

$$2\cos^2(x) = \cos(2x) + 1$$

$$\lim_{x \to +\infty} \frac{1}{x^2+1} = 0$$

$$\lim_{x \to +\infty} \frac{\sin x}{x} = 0$$

$$\lim_{x \to +\infty} \sin x = ??$$

this does not exist!

$$\lim_{x \to +\infty} -x + \sqrt{x^2 + x}$$