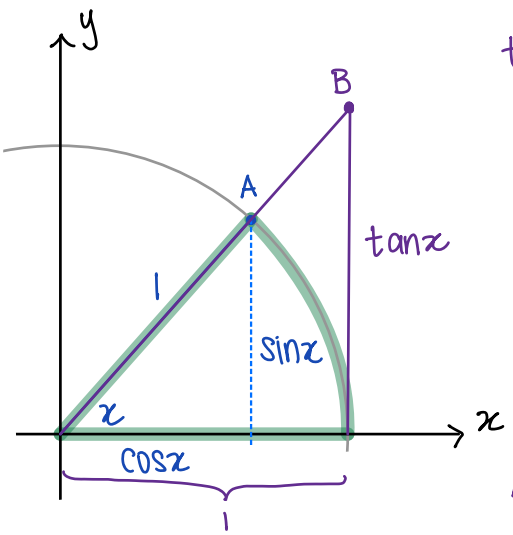
$$A_{\triangle A} = \frac{b \times h}{2}$$

$$= \frac{\cos x \times \sin x}{2}$$

$$\frac{\pi r^2}{2\pi} = \frac{A_\diamond}{x} \qquad r = 1$$

$$A_\diamond = \frac{x}{2}$$



$$\tan x = \frac{y}{x} \qquad x = 1$$

$$y = \tan x$$

$$A_{\triangle B} = \frac{b \times h}{2}$$

$$= \frac{1 \times \tan x}{2}$$

$$= \frac{\tan x}{2}$$

$$A_{\triangle A} \leq A_\diamond$$

$$\frac{\sin x \cos x}{2} \leq \frac{x}{2}$$

$$\frac{\sin x \cos x}{\cos x} \leq \frac{x}{\cos x}$$

$$x \div \sin x \leq \frac{x}{\cos x} \div x$$

$$\boxed{\frac{\sin x}{x} \leq \frac{1}{\cos x}}$$

$$A_{\triangle B} \geq A_\diamond$$

$$\frac{\tan x}{2} \geq \frac{x}{2}$$

$$\cos x \times \frac{\sin x}{\cos x} \geq x \times \cos x$$

$$\frac{\sin x}{x} \geq \frac{x \cos x}{x}$$

$$\boxed{\frac{\sin x}{x} \geq \cos x}$$

$$\cos x \leq \frac{\sin x}{x} \leq \frac{1}{\cos x}$$

Squeeze!

$$\lim_{x \to 0} \cos x = 1 \qquad \lim_{x \to 0} \frac{1}{\cos x} = 1$$

$$\Rightarrow \lim_{x \to 0} \frac{\sin x}{x} = 1$$

and now we can use this as an identity when solving other limits!