

**LEMBAR KERJA PESERTA DIDIK  
MATEMATIKA TINGKAT LANJUT  
SMAN 1 PALIMANAN**

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**PERTEMUAN KE 4 (TIGA)  
LIMIT FUNGSI**

Kelompok ke :

Ketua Kelompok :

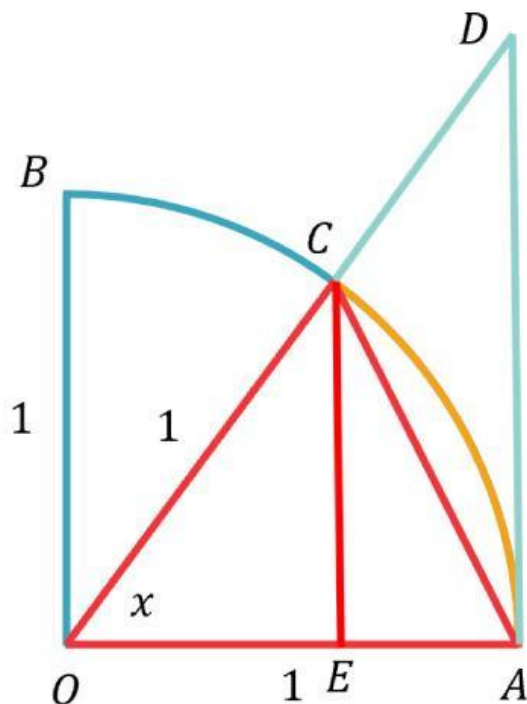
Anggota 1.

2.

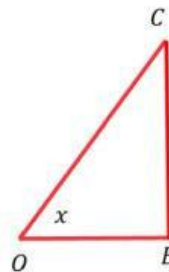
3.

4.

5.



Perbandingan Trigonometri



$$\sin x = \frac{EC}{OC}$$

$$\sin x = \frac{EC}{1}$$

$$EC =$$

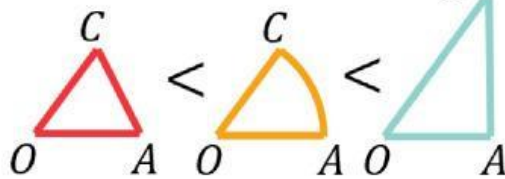


$$\tan x = \frac{AD}{OA}$$

$$\tan x = \frac{AD}{1}$$

$$AD =$$

## Luas Daerah



### PERMASALAHAN 1

**LUAS SEGITIGA OAC** < **LUAS JURING OAC** < **LUAS SEGITGA OAD**

$$\frac{1}{2} \cdot \text{Alas} \cdot \text{Tinggi} < \frac{x}{2\pi} \cdot \text{Luas Lingkaran} < \frac{1}{2} \cdot \text{Alas} \cdot \text{Tinggi}$$

$$\frac{1}{2} \cdot \sin x < \frac{x}{2\pi} \cdot \pi < \frac{1}{2} \cdot \frac{1}{\sin x}$$

$$\frac{1}{2} \cdot \sin x < \frac{x}{2} < \frac{1}{2} \cdot \frac{1}{\sin x}$$

$$\frac{\sin x}{2} < \frac{x}{2} < \frac{1}{2\sin x}$$

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$\sin x < x < \frac{1}{\sin x}$

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Di kali 2

Di kali  $\frac{1}{\sin x}$

$$\frac{\sin x}{\sin x} < \frac{x}{\sin x} < \frac{1}{\sin x \sin x}$$

$$1 < \frac{x}{\sin x} < \frac{1}{\sin^2 x}$$

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Limit untuk  
 $x \rightarrow 0$

$$\lim_{x \rightarrow 0} 1 < \lim_{x \rightarrow 0} \frac{x}{\sin x} < \lim_{x \rightarrow 0} \frac{1}{\sin^2 x}$$

$$1 < \lim_{x \rightarrow 0} \frac{x}{\sin x} < \infty$$

Maka nilai dari

$$\lim_{x \rightarrow 0} \frac{x}{\sin x} = 1$$

## PERMASALAHAN 2

Dipermasalahan 1 kita sudah ketahui nilai berikut.

$$-x < x < x$$

Di kali  $\frac{1}{\tan x}$

$$-\frac{x}{\tan x} < \frac{x}{\tan x} < \frac{x}{\tan x}$$

$$-1 < \frac{x}{\tan x} < 1$$

Limit untuk  
 $x \rightarrow 0$

$$\lim_{x \rightarrow 0} -1 < \lim_{x \rightarrow 0} \frac{x}{\tan x} < \lim_{x \rightarrow 0} 1$$
$$-1 < \lim_{x \rightarrow 0} \frac{x}{\tan x} < 1$$

Maka nilai dari

$$\lim_{x \rightarrow 0} \frac{x}{\tan x} =$$