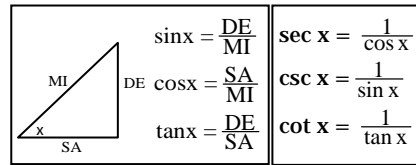
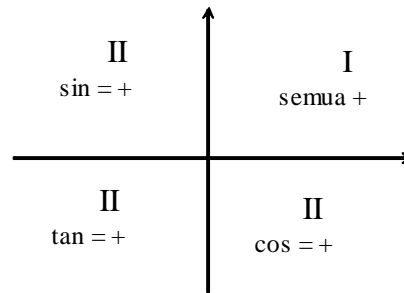


TRIGONOMETRI



KUADRAN



Sudut Istimewa

α	0°	30°	45°	60°	90°
$\sin \alpha$	0	$\frac{1}{2}$	$\frac{1}{2}\sqrt{2}$	$\frac{1}{2}\sqrt{3}$	1
$\cos \alpha$	1	$\frac{1}{2}\sqrt{3}$	$\frac{1}{2}\sqrt{2}$	$\frac{1}{2}$	0
$\tan \alpha$	0	$\frac{1}{3}\sqrt{3}$	1	$\sqrt{3}$	-

Identitas

- $\sin^2 x + \cos^2 x = 1$
- $\sin^2 x = 1 - \cos^2 x$
- $\cos^2 x = 1 - \sin^2 x$
- $\tan x = \frac{\sin x}{\cos x}$
- $\cot x = \frac{\cos x}{\sin x}$
- $\sec x = \frac{1}{\cos x}$
- $\csc x = \frac{1}{\sin x}$
- $\sec^2 x = \tan^2 x + 1$
- $\csc^2 x = \cot^2 x + 1$

Aturan Segitiga

- Aturan sinus pada segitiga ABC

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

- Aturan cosinus pada segitiga ABC

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$c^2 = a^2 + b^2 - 2ab \cos C$$

- Luas segitiga ABC

$$L = \frac{1}{2} \cdot bc \sin A = \frac{1}{2} \cdot ac \sin B = \frac{1}{2} \cdot ab \sin C$$

$$L = \sqrt{s(s-a)(s-b)(s-c)}$$

$$s = \frac{1}{2}(a + b + c)$$

Rumus Trigonometri

1. $\sin(\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta$
2. $\sin(\alpha - \beta) = \sin \alpha \cos \beta - \cos \alpha \sin \beta$
3. $\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta$
4. $\cos(\alpha - \beta) = \cos \alpha \cos \beta + \sin \alpha \sin \beta$
5. $\tan(\alpha + \beta) = \frac{\tan \alpha + \tan \beta}{1 - \tan \alpha \tan \beta}$
6. $\tan(\alpha - \beta) = \frac{\tan \alpha - \tan \beta}{1 + \tan \alpha \tan \beta}$
7. $\sin 2\alpha = 2 \sin \alpha \cos \alpha$
8. $\cos 2\alpha = \cos^2 \alpha - \sin^2 \alpha$
 $\cos 2\alpha = 2\cos^2 \alpha - 1$
 $\cos 2\alpha = 1 - 2\sin^2 \alpha$
9. $\tan 2\alpha = \frac{2\tan \alpha}{1 - \tan^2 \alpha}$
10. $\sin^2 \alpha = \frac{1}{2} - \frac{1}{2} \cos 2\alpha$
11. $\cos^2 \alpha = \frac{1}{2} + \frac{1}{2} \cos 2\alpha$
12. $\sin 3\alpha = 3\sin \alpha - 4\sin^3 \alpha$
13. $\cos 3\alpha = 4\cos^3 \alpha - 3\cos \alpha$
14. $2\sin \alpha \cos \beta = \sin(\alpha + \beta) + \sin(\alpha - \beta)$
15. $2\cos \alpha \sin \beta = \sin(\alpha + \beta) - \sin(\alpha - \beta)$
16. $2\cos \alpha \cos \beta = \cos(\alpha + \beta) + \cos(\alpha - \beta)$
17. $-2\sin \alpha \cos \beta = \cos(\alpha + \beta) - \cos(\alpha - \beta)$
18. $\sin \alpha + \sin \beta = 2 \sin \frac{1}{2}(\alpha + \beta) \cos \frac{1}{2}(\alpha - \beta)$
19. $\sin \alpha - \sin \beta = 2 \cos \frac{1}{2}(\alpha + \beta) \sin \frac{1}{2}(\alpha - \beta)$
20. $\cos \alpha + \cos \beta = 2\cos \frac{1}{2}(\alpha + \beta) \cos \frac{1}{2}(\alpha - \beta)$
21. $\cos \alpha - \cos \beta = -2 \sin \frac{1}{2}(\alpha + \beta) \sin \frac{1}{2}(\alpha - \beta)$

Bentuk $a \cos x + b \sin x$

1. $a \cos x + b \sin x = k \cos(x - \alpha)$
 $k = \sqrt{a^2 + b^2}$ dan $\tan \alpha = \frac{b}{a}$
2. $y = a \cos x + b \sin x + c$
 $y_{\max} = k + c$ dan $y_{\min} = -k + c$
3. Agar $a \cos x + b \sin x = c$ bisa diselesaikan maka $a^2 + b^2 \geq c^2$

Persamaan trigonometri

1. $\sin x = \sin \alpha$
 $x = \alpha + n \cdot 360^\circ$
 $x = 180^\circ - \alpha + n \cdot 360^\circ$
2. $\cos x = \cos \alpha$
 $x = \pm \alpha + n \cdot 360^\circ$
3. $\tan x = \tan \alpha$
 $x = \alpha + n \cdot 180^\circ$