

Materi PTS :

1. Perbandingan trigonometri
2. Sudut istimewa
3. Sudut berelasi
4. Soal cerita

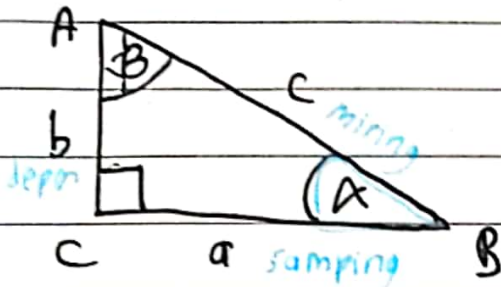
TRIGONOMETRI

tiga sudut perhitungan

Hukum Pythagoras

$$a^2 + b^2 = c^2$$

siku
cosus
tangen

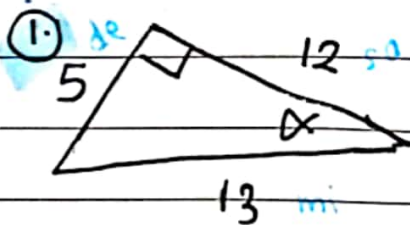


miring → sebrang siku"

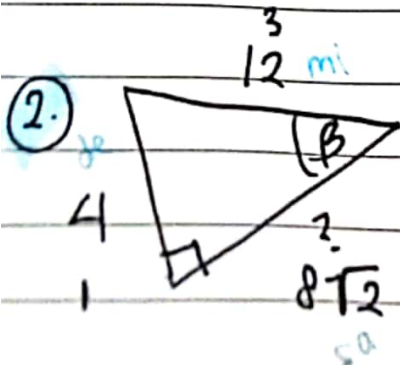
$\sin \alpha$	$= \frac{\text{depan}}{\text{miring}} = \frac{\text{de}}{\text{mi}} = \frac{b}{c}$	\times	$\text{cosec } \alpha = \frac{1}{\sin \alpha}$
$\cos \alpha$	$= \frac{\text{samping}}{\text{miring}} = \frac{\text{sa}}{\text{mi}} = \frac{a}{c}$	\times	$\text{sec } \alpha = \frac{1}{\cos \alpha}$
$\tan \alpha$	$= \frac{\text{depan}}{\text{samping}} = \frac{\text{de}}{\text{sa}} = \frac{b}{a}$	\times	$\text{cotan } \alpha = \frac{1}{\tan \alpha}$

$$\sin \beta = \frac{a}{c} \quad || \quad \cos \beta = \frac{a}{c} \quad || \quad \tan \beta = \frac{a}{b}$$

contoh

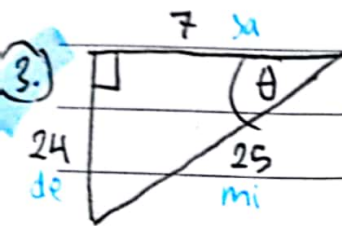


- $\sin \alpha = \frac{\text{de}}{\text{mi}} = \frac{5}{13} //$
- $\cos \alpha = \frac{\text{sa}}{\text{mi}} = \frac{12}{13} //$
- $\tan \alpha = \frac{\text{de}}{\text{sa}} = \frac{5}{12} //$



$$\begin{aligned} ? &= 1^2 + 4^2 = 3^2 \\ b^2 &= 9 - 1 \\ b^2 &= 8 \\ b &= \sqrt{8} = 2 \cdot \sqrt{2} \times 4 \\ &= 8\sqrt{2} \end{aligned}$$

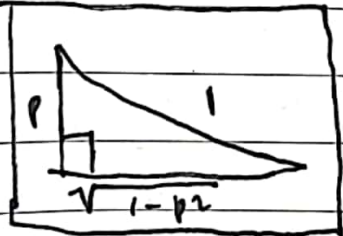
$$\begin{aligned} \bullet \sin \beta &= \frac{de}{mi} = \frac{4}{12} = \frac{1}{3} & \bullet \operatorname{cosec} \beta &= \frac{1}{\sin \beta} = \frac{1}{1/3} = 3 // \\ \bullet \cos \beta &= \frac{sa}{mi} = \frac{8\sqrt{2}}{12} = \frac{2\sqrt{2}}{3} & \bullet \sec \beta &= \frac{1}{\cos \beta} = \frac{1}{\frac{2\sqrt{2}}{3}} = \frac{3}{2\sqrt{2}} = \frac{3\sqrt{2}}{4} // \\ \bullet \tan \beta &= \frac{de}{sa} = \frac{4}{8\sqrt{2}} = \frac{1}{2\sqrt{2}} & \bullet \cotan \beta &= \frac{1}{\tan \beta} = \frac{1}{1/2\sqrt{2}} = 2\sqrt{2} // \end{aligned}$$



$$\begin{aligned} \bullet \sin \theta &= \frac{de}{mi} = \frac{24}{25} & \bullet \operatorname{cosec} \theta &= \frac{1}{\sin \theta} = \frac{1}{24/25} = \frac{25}{24} // \\ \bullet \cos \theta &= \frac{sa}{mi} = \frac{7}{25} & \bullet \sec \theta &= \frac{1}{\cos \theta} = \frac{1}{7/25} = \frac{25}{7} // \\ \bullet \tan \theta &= \frac{de}{sa} = \frac{24}{7} & \bullet \cotan \theta &= \frac{1}{\tan \theta} = \frac{1}{24/7} = \frac{7}{24} // \end{aligned}$$

buku ph

$$25. \sin X = \frac{p}{1} = \frac{de}{mi}$$



$$\tan X = \frac{de}{sa} = \frac{p}{\sqrt{1-p^2}}$$

note: mining blh dikasih angka sah ki ga diketahui.

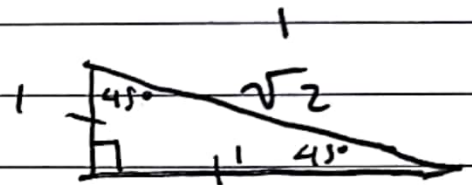
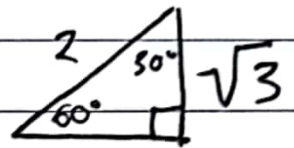
$$\begin{aligned} &= \frac{1 - \tan^2 X}{1 + \tan^2 X} \\ &= \frac{1 - \frac{p^2}{1-p^2}}{1 + \frac{p^2}{1-p^2}} = \frac{\left(\frac{1-p^2-p^2}{1-p^2}\right)}{\left(\frac{1-p^2+p^2}{1-p^2}\right)} = 1 - 2p^2 // \end{aligned}$$

Sudut istimewa

harus diingat :)

	0°	30°	45°	60°	90°
$\sin A$	0	$\frac{1}{2}$	$\frac{1}{2}\sqrt{2}$	$\frac{1}{2}\sqrt{3}$	1
$\cos A$	1	$\frac{1}{2}\sqrt{3}$	$\frac{1}{2}\sqrt{2}$	$\frac{1}{2}$	0
$\tan A$	0	$\frac{1}{\sqrt{3}}$	1	$\sqrt{3}$	tdk terdefinisi

konsep



$$\tan A = \frac{de}{sa} = \frac{de/mi}{sa/mi} = \frac{\sin A}{\cos A}$$

contoh buku ph

$$\text{118. } \frac{\cos 30^\circ \cdot \cos 60^\circ + \sin 45^\circ \cdot \sin 30^\circ}{\cotan 45^\circ + \sin 30^\circ}$$

$$= \frac{\left(\frac{1}{2}\sqrt{3}\right)\left(\frac{1}{2}\right) + \left(\frac{1}{2}\sqrt{2}\right)\left(\frac{1}{2}\right)}{1 + \frac{1}{2}}$$

$$= \frac{\frac{1}{4}\sqrt{3} + \frac{1}{4}\sqrt{2}}{\frac{3}{2}}$$

$$= \frac{1}{4}(\sqrt{3} + \sqrt{2}) \cdot \frac{2}{3}$$

$$= \frac{1}{6}(\sqrt{3} + \sqrt{2}) //$$