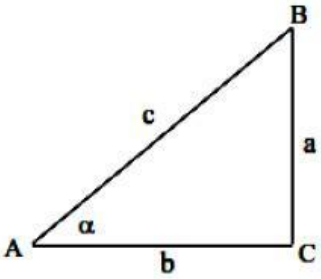
Perbandingan Trigonometri

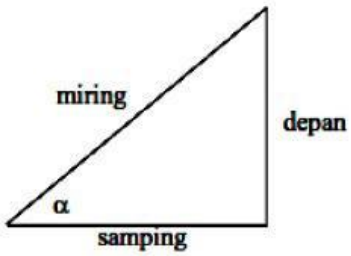
Lembar Kerja Peserta Didik (LKPD)

Nama: .....

Kelas: .....

Perhatikan segitiga siku-siku ABC disamping. Dengan titik sudut siku-siku di C.
Panjang sisi dihadapan sudut A (sisi depan) dinamakan a atau
Panjang sisi dihadapan sudut B (sisi samping) dinamakan b atau
Panjang sisi dihadapan sudut C (sisi miring) dinamakan c atau





Yang dimaksud nilai perbandingan dalam trigonometri adalah enam nilai perbandingan sisi sisi segitiga siku-siku, yaitu :

$\sin \alpha = \frac{a}{c} = \frac{sisi\ depan}{sisi\ miring}$

$\cos \alpha = \frac{b}{c} = \frac{sisi\ samping}{sisi\ miring}$

$\tan \alpha = \frac{a}{b} = \frac{sisi\ depan}{sisi\ samping}$

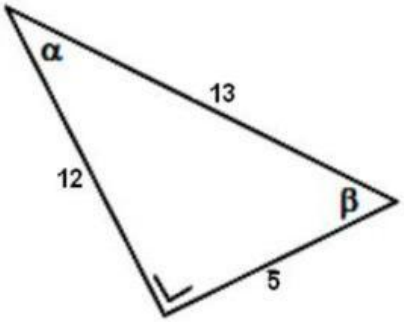
$\text{cosec } \alpha = \frac{c}{a} = \frac{\text{sisi miring}}{\text{sisi depan}}$

$\sec \alpha = \frac{c}{b} = \frac{\text{sisi miring}}{\text{sisi samping}}$

$\text{cotan } \alpha = \frac{b}{a} = \frac{\text{sisi samping}}{\text{sisi depan}}$

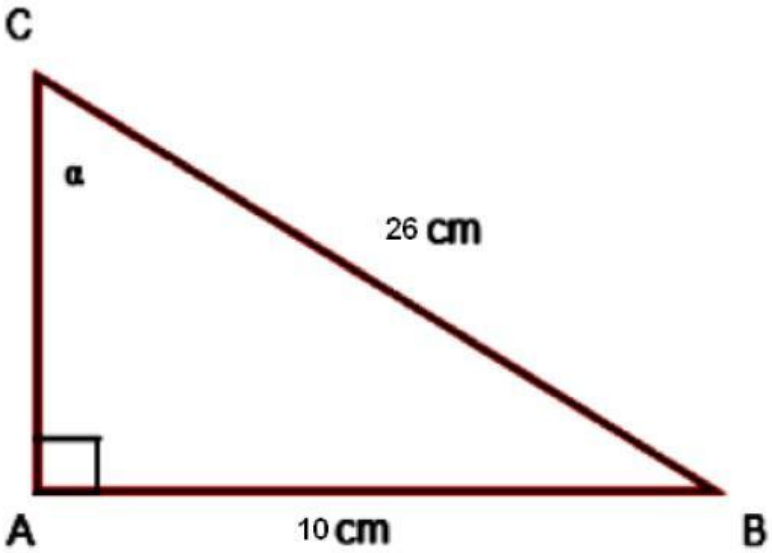
Find the Solution

01. Dari segitiga siku-siku disamping tentukanlah nilai dari :



(a) sin α (b) cos α
(c) tan α (d) sin β
(e) cos β (f) tan β

02. **Perhatikan segitiga siku-siku ABC di bawah.**



Tentukan:

a. **Panjang AC**
b. **Sin α, cos α, tan α**
c. **Sec α, cosec α, dan cotan α**

3. Diberikan sin A = $\frac{3}{5}$. Tentukan lima perbandingan trigonometri yang lain.

Solution:

1. (a) $\sin \alpha = \frac{\text{depan}}{\text{miring}} = \_$ (b) $\cos \alpha = \frac{\text{samping}}{\text{miring}} = \_$

(c) $\tan \alpha = \frac{\text{depan}}{\text{samping}} = \_$ (d) $\sin \beta = \frac{\text{depan}}{\text{miring}} = \_$

(e) $\cos \beta = \frac{\text{samping}}{\text{miring}} = \_$ (f) $\tan \beta = \frac{\text{depan}}{\text{samping}} = \_$

2 a. Diketahui: Panjang AB = cm dan BC = cm.

Dengan menggunakan Teorema Phytagoras diperoleh:

$BC^2 = AC^2 + AB^2 \leftrightarrow AC^2 = BC^2 - AB^2$

$\leftrightarrow AC = \sqrt{BC^2 - AB^2}$

$\leftrightarrow AC = \sqrt{\quad^2 - \quad^2} = \sqrt{\quad - \quad} = \sqrt{\quad} =$

Jadi Panjang AC = cm.

b. $\text{Sin } \alpha = \frac{\textit{sisi depan sudut}}{\textit{sisi miring segitiga}} = \frac{AB}{BC} = \frac{}{} = -$

$\cos \alpha = \frac{\textit{sisi samping sudut}}{\textit{sisi miring segitiga}} = \frac{AC}{BC} = \frac{}{} = -$

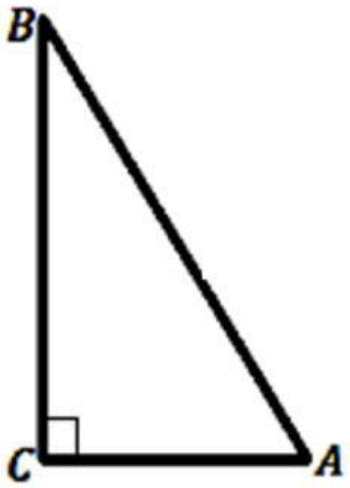
$\tan \alpha = \frac{\textit{sisi depan sudut}}{\textit{sisi samping sudut}} = \frac{AB}{AC} = \frac{}{} = -$

c. $\text{Sec } \alpha = \frac{\textit{sisi miring segitiga}}{\textit{sisi samping sudut}} = \frac{CB}{AC} = \frac{}{} = -$

$\text{cosec } \alpha = \frac{\textit{sisi miring segitiga}}{\textit{sisi depan sudut}} = \frac{CB}{AB} = \frac{}{} = -$

$\text{cotan } \alpha = \frac{\textit{sisi samping sudut}}{\textit{sisi depan sudut}} = \frac{AC}{AB} = \frac{}{} = -$

3.



$AC^2 = AB^2 - BC^2$

$AC = \sqrt{AB^2 - BC^2} = \sqrt{\quad^2 - \quad^2}$

$= \sqrt{\quad - \quad} = \sqrt{\quad} =$

$\cos A = \frac{\quad}{\quad}$ $\qquad$ $\sec A = \frac{\quad}{\quad}$

$\tan A = \frac{\quad}{\quad}$ $\qquad$ $\cot A = \frac{\quad}{\quad}$

$\text{cosec } A = \frac{\quad}{\quad}$