

KUNCI JAWABAN dan PENSKORAN

1. Penyelesaian

a. $\sin \theta = \frac{12}{13}$

Maka perbandingan trigonometri lainnya adalah :

$$\cos \theta = \frac{5}{13} \tan \theta = \frac{12}{5} \csc \theta = \frac{13}{12} \sec \theta = \frac{13}{5} \cot \theta = \frac{5}{12}$$

Nilai : 5

b. $\cos \theta = \frac{2}{3}$

Maka perbandingan trigonometri lainnya adalah :

$$\sin \theta = \frac{\sqrt{5}}{3} \tan \theta = \frac{\sqrt{5}}{2} \csc \theta = \frac{3}{\sqrt{5}} \sec \theta = \frac{3}{2} \cot \theta = \frac{2}{\sqrt{5}}$$

Nilai : 5

c. $\tan \theta = \frac{7}{24}$

Maka perbandingan trigonometri lainnya adalah :

$$\sin \theta = \frac{7}{25} \cos \theta = \frac{24}{25} \csc \theta = \frac{25}{7} \sec \theta = \frac{25}{24} \cot \theta = \frac{24}{7}$$

Nilai : 5

d. $\sec \theta = \frac{5}{3}$

Maka perbandingan trigonometri lainnya adalah :

$$\sin \theta = \frac{7}{25} \cos \theta = \frac{24}{25} \csc \theta = \frac{25}{7} \sec \theta = \frac{25}{24} \cot \theta = \frac{24}{7}$$

Nilai : 5

e. $\csc \theta = \frac{4}{3}$

maka perbandingan trigonometri lainnya adalah :

$$\sin \theta = \frac{3}{4} \cos \theta = \frac{\sqrt{7}}{4} \csc \theta = \frac{3}{\sqrt{7}} \sec \theta = \frac{4}{\sqrt{7}} \cot \theta = \frac{\sqrt{7}}{3}$$

Nilai : 5

f. $\cot \theta = \frac{3}{4}$

maka perbandingan trigonometri lainnya adalah :

$$\sin \theta = \frac{4}{5} \cos \theta = \frac{3}{5} \csc \theta = \frac{5}{4} \sec \theta = \frac{5}{3} \tan \theta = \frac{4}{3}$$

Nilai : 5

2. Penyelesaian

$$\begin{aligned} \frac{1 - \cos \theta}{\sin \theta} &= \frac{\sin \theta}{1 + \cos \theta} \\ &= \frac{1 - \cos \theta}{\sin \theta} \cdot \frac{1 + \cos \theta}{1 + \cos \theta} \end{aligned}$$

$$\begin{aligned}
 &= \frac{1 - \cos^2 \theta}{\sin \theta (1 + \cos \theta)} \\
 &= \frac{\sin^2 \theta}{\sin \theta (1 + \cos \theta)} \\
 &= \frac{\sin \theta}{1 + \cos \theta}
 \end{aligned}$$

Nilai : 10

3. Penyelesaian

$$\sin \theta = \frac{1}{3}$$

Identitas trigonometri lainnya dikuadrakan kedua adalah :

$$\cos \theta = \frac{-\sqrt{8}}{3} \quad \tan \theta = \frac{1}{-\sqrt{8}} \quad \csc \theta = 3 \quad \sec \theta = \frac{3}{-\sqrt{8}} \quad \cot \theta = -\sqrt{8}$$

Nilai : 10

4. Penyelesaian

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

$$\frac{17}{\sin 45} = \frac{8}{\sin b}$$

$$\sin b = \frac{4}{17} \sqrt{2}$$

$$\angle b = \arcsin \frac{4}{17} \sqrt{2}$$

$$\angle b = 19,43^\circ$$

$$\angle c = 180^\circ - (45 + 19,43)^\circ$$

$$\angle c = 115,56^\circ$$

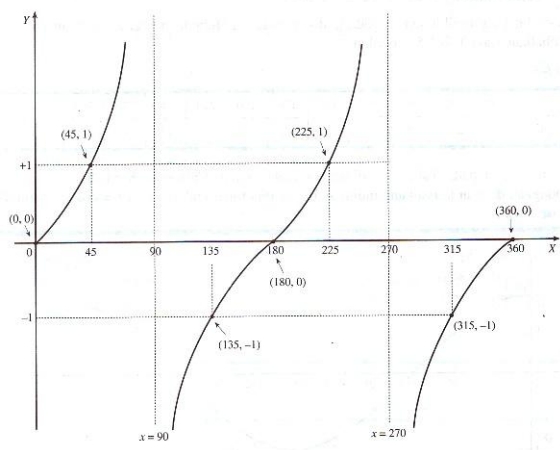
$$\frac{A}{\sin a} = \frac{C}{\sin c}$$

$$C = \frac{15,33}{\frac{\sqrt{2}}{2}} = 30,67\sqrt{2}$$

Nilai : 15

5. Penyelesaian

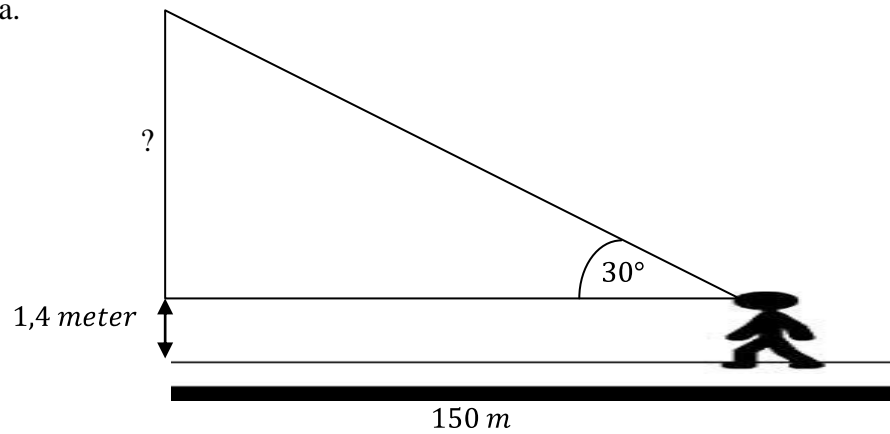
Gambar grafik fungsi $\tan x$



Nilai : 15

6. Penyelesaian

a.



b. $\tan 30^\circ = \frac{\text{tinggi bendungan}}{\text{jarak}}$

$$\frac{\sqrt{3}}{3} = \frac{x}{150}$$

$$x = 50\sqrt{3} \text{ meter}$$

Jadi, tinggi bendungan dari permukaan tanah adalah :

$$50\sqrt{3} + 1,4 = 51,4\sqrt{3} \text{ meter}$$

Nilai : 20