

$$1) \dot{\varphi} = (\alpha) \text{ rad} \Rightarrow \frac{r\dot{\varphi}}{1\text{m}} = \frac{r\alpha}{\pi} \Rightarrow r\alpha, \frac{r\dot{\varphi}\pi}{1\text{m}}, \frac{r\pi}{1\text{m}} = \alpha$$

$$2) \dot{\varphi} = (\alpha) \text{ rad} \Rightarrow \frac{r\dot{\varphi}}{1\text{m}} = \frac{r\alpha}{\pi} \Rightarrow r\alpha, \frac{r\dot{\varphi}\pi}{1\text{m}} = \frac{r\alpha\pi}{\pi}$$

$$3) \frac{\Delta x}{12} \text{ rad}, (\alpha) \Rightarrow \frac{\Delta x}{12} = \frac{\alpha}{1\text{m}} \Rightarrow \alpha, \frac{\Delta x \times 1\text{m}}{12}, \Delta x \times 1\text{m}, \sqrt{\Delta x}$$

$$4) \frac{\pi}{9} \text{ rad}, (\alpha) \Rightarrow \frac{\frac{\pi}{9}}{\frac{\pi}{1}} = \frac{\alpha}{1\text{m}} \Rightarrow \alpha, \frac{\frac{\pi}{9} \times 1\text{m}}{9}, \frac{\pi}{9} \times 1\text{m}, \frac{\pi}{9}$$

$$\frac{12\Delta x}{9} = \frac{D}{1\text{m}} \rightarrow \frac{D}{12} \alpha, \frac{D}{1\text{m}} \rightarrow D, 12, \Delta x$$

$$\Rightarrow 12\Delta x + 12\Delta x + 10\alpha, 1\text{m}, \frac{\pi}{9}\Delta x$$

$$\frac{\alpha\pi}{\frac{\pi}{1}} = \frac{D}{1\text{m}} \rightarrow \frac{\alpha}{1} = \frac{D}{1\text{m}} \rightarrow D = 12, \Delta x$$

$$\Rightarrow \alpha, \frac{1\text{m}}{\Sigma \Delta}, \frac{\pi}{9}$$

$$1) \cos 40^\circ \cos 1^\circ - \sin 40^\circ \sin 1^\circ - \tan 40^\circ + \tan 1^\circ = 1$$

$$2) \frac{\tan 1^\circ + \tan 40^\circ + \tan 4^\circ}{\cot 1^\circ - \cot 4^\circ} = \frac{(\frac{\sqrt{3}}{3})^2 + (1)^2 + (\sqrt{3})^2}{\sqrt{3} - \frac{\sqrt{3}}{3}} = \frac{\frac{1}{3} + 1 + 3}{\frac{2\sqrt{3}}{3}} = \frac{13}{2\sqrt{3}}$$

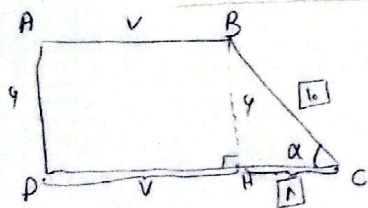
$$\Rightarrow -(\cos 4^\circ) + \sin 4^\circ = \sin \theta \rightarrow -(\frac{1}{3}) + (\frac{\sqrt{3}}{3}) = -\frac{1}{3} + \frac{\sqrt{3}}{3} = \frac{\sqrt{3}-1}{3} = \sin \theta \Rightarrow \theta = 40^\circ$$

$$\tan 40^\circ, \frac{1}{3}$$

$$\frac{r \tan 40^\circ (1 - \tan 1^\circ)}{(1 - \tan 4^\circ)^2} = \frac{r \times \frac{\sqrt{3}}{3} (1 - \frac{1}{3})}{(\frac{2}{3})^2} = \frac{\frac{r\sqrt{3}}{3}}{1 - \frac{1}{3}} = \frac{\frac{r\sqrt{3}}{3}}{\frac{2}{3}} = \frac{r\sqrt{3}}{2}, \frac{r\sqrt{3}}{2}, \sqrt{3} \tan \theta = \tan 4^\circ$$

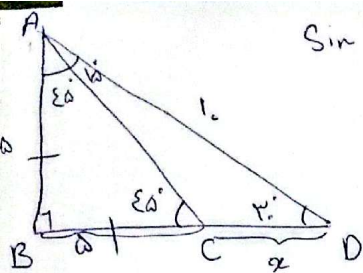
$$\Rightarrow 4^\circ = (9\text{ rad}) \rightarrow \frac{9}{1\text{m}}, \frac{\text{rad}}{\pi} \rightarrow \text{rad}, \frac{9 \times \pi}{1\text{m}}, \frac{\pi}{3}$$

$$\tan \theta, \Delta = \frac{\sin \theta}{\cos \theta} \Rightarrow \sin \theta, \Delta \cos \theta \rightarrow \frac{r(\Delta \cos \theta) - \cos \theta}{\Delta \cos \theta - r \cos \theta} = \frac{14 \cos \theta}{\cos \theta} = 14$$



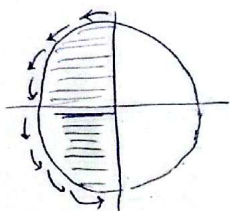
$$\sin \alpha, \frac{10}{\sqrt{3}}, \frac{9}{\sqrt{3}} = \frac{9}{1} \Rightarrow BC = 10, CH = 1$$

$$\Rightarrow \text{المجموع} = V + 10 + 1 + V + 9 = 38$$



$$\sin 30^\circ, \frac{AB}{AD}, \frac{AB}{1}, \frac{1}{2} \Rightarrow AB, \underline{\omega} = BC$$

$$\sin 40^\circ, \frac{\sqrt{3}}{2}, \frac{\omega + x}{1} \Rightarrow \omega + x = \omega\sqrt{3} \Rightarrow CD, x, \omega\sqrt{3} - \omega$$



الف) ناصبه سوم ب) ناصبه دوم

$$\tan x = \frac{1}{\sqrt{3}} = \frac{\sin x}{\cos x} \Rightarrow \cos x = \sqrt{3} \sin x, \cos^2 x + \sin^2 x = 1 \Rightarrow 4 \sin^2 x + \sin^2 x = 1 \Rightarrow \sin^2 x = \frac{1}{5}$$

$$\Rightarrow \sin x = \pm \sqrt{\frac{1}{5}}$$

چون ابتدای کمان زاویه در ناصبه سوم هست پس $\sin x$ و $\cos x$ منفی هستند. $\leftarrow$

$$\sin x = -\sqrt{\frac{1}{5}}$$