

$$\frac{\sec(\frac{\pi}{2} - \alpha) - \tan(\pi - \alpha)}{\sec(\frac{\pi}{2} - \alpha) + \tan(\pi - \alpha)} = \frac{\sec \alpha + \tan \alpha}{\sec \alpha - \tan \alpha} \quad (V)$$

$$= \frac{\sec \alpha}{-\tan \alpha} = (-1) \left(\frac{\cos^2}{\sin^2} \right) / \frac{1 - \cos \alpha}{1 + \cos \alpha} = 1 \Rightarrow \cos \alpha = -\frac{1}{\sqrt{2}} \Rightarrow \sin \alpha = \frac{1}{\sqrt{2}}$$

$$\Rightarrow -1 \left(\frac{\frac{1}{\sqrt{2}}}{\frac{1}{\sqrt{2}}} \right) = -1 \times \frac{1}{1} = -1 \quad \checkmark$$

$$\frac{L_A}{L_B} = \frac{\theta_A}{\theta_B} \times \frac{r_A}{r_B} \xrightarrow{L \propto \frac{1}{\omega}} 1 = \frac{\left(\frac{\omega_A}{\omega_B} \right) \times \frac{r_A}{r_B}}{\left(\frac{\omega_A}{\omega_B} \right) \times \frac{r_B}{r_A}} = \frac{r_A}{r_B} \quad (1)$$

$$\Rightarrow \frac{L_A}{L_B} = \left(\frac{r_A}{r_B} \right)^2 = \frac{4}{9}$$

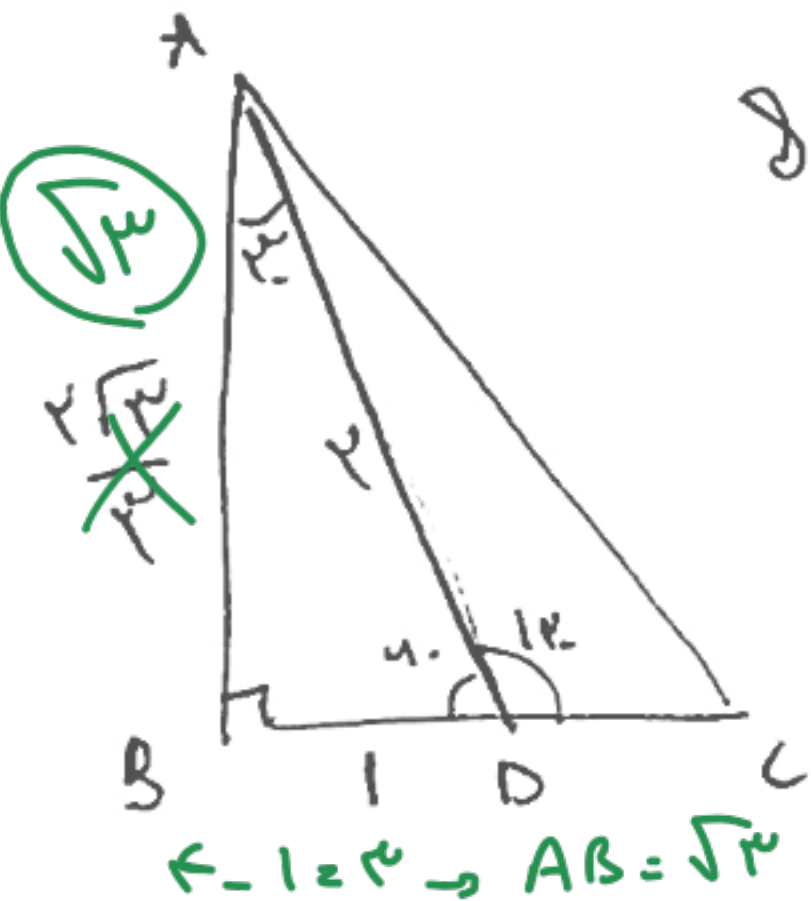


$$2A = LB \rightarrow \frac{1 \cdot \omega_A}{1 \cdot \omega_B} \times r_A = \frac{4 \cdot \omega_B}{1 \cdot \omega_B} \times r_B \rightarrow r_A = \frac{4}{1} r_B$$

$$\frac{S_A}{S_B} = \left(\frac{r_A}{r_B} \right)^2 = \frac{16}{9}$$

چرا انقدر سخت حل کردی !!

$$S_{ABC} = \sqrt{3} = S_{ADC} + \left(\frac{1}{2} \times \frac{1}{2} \times \frac{\sqrt{3}}{2} \right) \Rightarrow S_{ADC} = \frac{\sqrt{3}}{2} \quad (1)$$



$$\frac{1}{2} \times DC \times \frac{1}{2} \times \frac{\sqrt{3}}{2} = \frac{\sqrt{3}}{4} \Rightarrow DC = \frac{1}{2}$$

$$AC = \sqrt{\frac{41}{9}} = \frac{\sqrt{41}}{3}$$

بقدرت سینوس

$$\frac{r(AC)}{\sqrt{3}} = \frac{r}{\sin C} \rightarrow \sin C = \frac{\sqrt{3}}{\sqrt{41}} \times \frac{1}{2}$$

$$BC = \frac{1}{2}$$

$$\frac{12}{9} + \frac{41}{9} = AC^2$$

$$\Rightarrow \sin C = \frac{1}{2} \times \frac{\sqrt{3}}{\sqrt{41}} \times \frac{\sqrt{41}}{\sqrt{41}} \Rightarrow \sin C = \frac{\sqrt{3}}{2\sqrt{41}}$$

$$\sin C = \frac{4\sqrt{102}}{141}$$

$$\cos C = \sqrt{\frac{41 - 3}{41}} = \sqrt{\frac{38}{41}}$$

راه های ساده

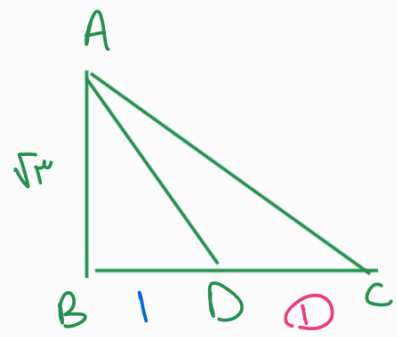


بقدرت کوسینوس

$$1 = 1 + 1 - 2 \cos \theta \quad (1)$$

$$\frac{1}{1} = 1 - \cos \theta \Rightarrow \cos \theta = \frac{1}{2}$$

$$\Rightarrow \sin \theta = \sqrt{\frac{149 - 144}{149}} = \frac{5}{\sqrt{149}}$$



$$S_{ABC} = \sqrt{r}$$

$$\frac{AB \times BC}{r} = \frac{\sqrt{r} \times BC}{r} = \sqrt{r} \rightarrow BC < r \rightarrow DC < 1$$

$$\rightarrow \sin \gamma_C = r \times \frac{\sqrt{r}}{\sqrt{v}} \times \frac{r}{\sqrt{v}} = \frac{r\sqrt{r}}{v}$$