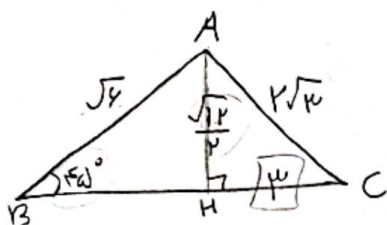


الف) $(\sin 144^\circ + \sin 108^\circ)(\cos 144^\circ - \cos 108^\circ) = \left(\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}\right) \left(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2}\right) = \left(\frac{\sqrt{2}}{2}\right)^2 - \left(\frac{\sqrt{2}}{2}\right)^2 = -\frac{1}{2}$ (الف) ۲۵

ب) $\frac{1 + \tan 110^\circ}{\sec^2 110^\circ + \sec^2 220^\circ} = \frac{1 + \tan 110^\circ}{\frac{1}{\cos^2 110^\circ} + \frac{1}{\cos^2 220^\circ}} = \frac{1}{\frac{1}{\cos^2 110^\circ} + \frac{1}{\cos^2 110^\circ}} = \frac{1}{\frac{2}{\cos^2 110^\circ}} = \frac{\cos^2 110^\circ}{2}$



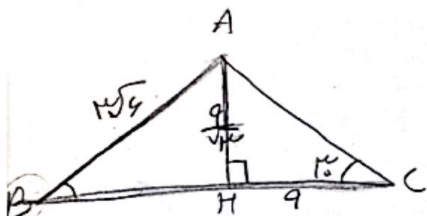
در مثل قائی‌الزاویه ABC
 $\frac{\sqrt{2}}{2} = \frac{1}{\sqrt{2}} \rightarrow \frac{\sqrt{2}}{2}$

$\left(\frac{\sqrt{2}}{2}\right)^2 - \left(\frac{\sqrt{2}}{2}\right)^2 = 9 \Rightarrow \sqrt{9} = 3$ (الف) ۲۶

(الف)

۲۶

$\sin \Rightarrow \frac{\text{مقابل}}{\text{وتر}}$ $\sin 45^\circ \Rightarrow \frac{\sqrt{2}}{2}$



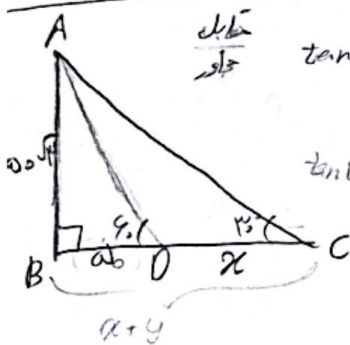
$\frac{1}{\sqrt{2}} = \frac{1}{2} \rightarrow \frac{1}{\sqrt{2}}$

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

$B = 45^\circ$ پس $\sin B$

ب) (الف) ۲۷

$\tan \Rightarrow \frac{\text{مقابل}}{\text{جانب}}$ $\tan 45^\circ \Rightarrow \frac{1}{\sqrt{2}}$



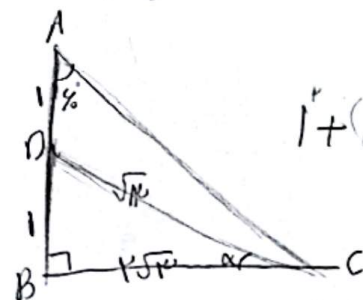
$\tan 45^\circ \Rightarrow \sqrt{2}$

$\tan 45^\circ \Rightarrow \frac{1}{\sqrt{2}}$

$\sqrt{2} = \frac{1}{\sqrt{2}} \Rightarrow \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}$

$180^\circ = 180^\circ + x$
 $x = 180^\circ$

(الف) ۲۸

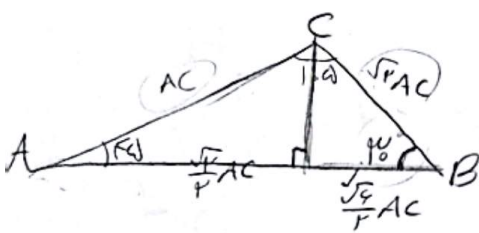


$1^2 + \left(\frac{1}{\sqrt{2}}\right)^2 = 1^2 \Rightarrow \sqrt{2}$

$\sin \alpha = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\sin \alpha$

$\tan 45^\circ = \sqrt{2}$ $\sqrt{2} = \frac{1}{\sqrt{2}} \rightarrow \sqrt{2}$



$$100 + 40 = 140$$

$$140 - 140 = 0$$

$$\frac{AB}{AC} \text{ (مقدار طول ضلع)} \quad (K)$$

$$\frac{AC}{\sin 45} = \frac{BC}{\sin 45} = \frac{AB}{\sin 90}$$

$$\frac{AC}{\frac{1}{\sqrt{2}}} = \frac{CB}{\frac{1}{\sqrt{2}}}$$

$$\frac{1}{\sqrt{2}} CB = \frac{\frac{\sqrt{2}}{2} AC}{\frac{1}{\sqrt{2}}}$$

$$CB = \frac{\sqrt{2}}{2} AC$$

$$\text{ضلع } AB \Rightarrow \frac{\sqrt{2}}{2} AC + \frac{\sqrt{2}}{2} AC =$$

$$AC \left(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} \right)$$

$$\sin 45 \Rightarrow \frac{1}{\sqrt{2}}$$

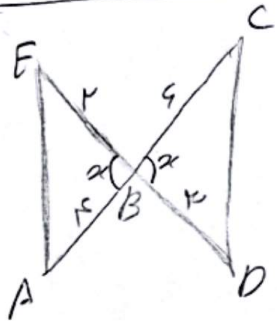
$$\sin 45 \Rightarrow \frac{\sqrt{2}}{2}$$

$$\frac{\sqrt{2}}{2} \Rightarrow \cos 45 \Rightarrow \frac{\sqrt{2}}{2} = \frac{CB}{AC} \Rightarrow \frac{\sqrt{2}}{2} AC$$

$$\cos 45 \Rightarrow \frac{\sqrt{2}}{2} = \frac{CB}{AC} \Rightarrow \frac{\sqrt{2}}{2} AC$$

$$\frac{AB}{AC} = \frac{AC \left(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} \right)}{AC} =$$

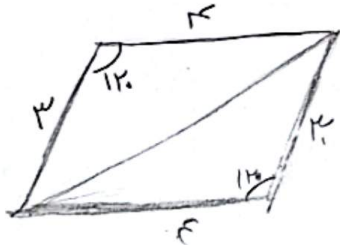
$$\frac{\sqrt{2} + \sqrt{2}}{2}$$



$$\frac{ABE}{BCD} = \frac{\frac{1}{2} \times \frac{1}{2} \times \sin 90}{\frac{1}{2} \times \frac{1}{2} \times \sin 90} = \frac{1}{1}$$

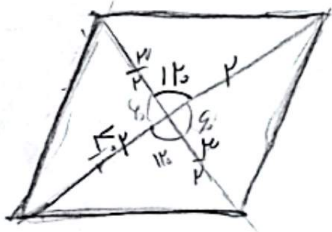
$$\frac{ABE}{BCD} \text{ (مقدار ضلع)}$$

(d)



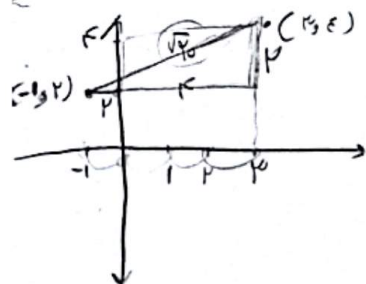
$$\frac{1}{2} \times \frac{1}{2} \times \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} = \frac{1}{4}$$

(g) مقدار ضلع واصلی واصلی واصلی واصلی



$$\sin 45 = \sin 45 = \frac{\sqrt{2}}{2}$$

$$\frac{1}{2} \times \frac{1}{2} \times \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} = \frac{1}{4}$$



$$1 + 1 = 2 \Rightarrow \sqrt{2} \Rightarrow \text{مقدار ضلع}$$

$$\cos \Rightarrow \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} \left(\frac{\sqrt{2}}{2} \right)$$

(v)

①

$$\frac{\omega}{r}$$

$$mb \Rightarrow -\sqrt{\mu} x \frac{d}{\nu} = -\frac{d\sqrt{\mu}}{\nu}$$

$a=1 \rightarrow \tan \phi' \rightarrow F_d + V_d = 1\% \quad 110 - 110 = 0 \quad \tan \phi' = \sqrt{\mu}$

$$f(x) = \cos\left(\pi + \frac{\omega\pi}{4}\right) + \sin\left(\frac{\pi}{\nu} - \frac{\omega\pi}{4}\right) - \tan\left(\frac{\nu\pi}{\nu} + \frac{\omega\pi}{4}\right) = -\sqrt{\mu}$$

$$\frac{\sin\left(\frac{14\pi}{5} + \alpha\right) + \cos\left(\frac{10\pi}{5} - \alpha\right)}{\cos(\pi + \alpha) - \sin(4\pi - \alpha)} = \frac{\overbrace{\sin\left(\pi + \frac{\pi}{5} + \alpha\right)}^{+\cos\alpha} + \overbrace{\cos\left(\pi + \frac{\pi}{5} + \alpha\right)}^{-\sin\alpha}}{-\cos\alpha - (-\sin\alpha)} = \frac{\cos\alpha - \sin\alpha}{-(\cos\alpha - \sin\alpha)} = -1$$

$$\frac{-\frac{10}{V}}{\frac{1}{T}} = \frac{\frac{10D}{r}}{\frac{D}{T}} = \frac{\frac{10D}{r}}{\frac{10D}{r}} = \frac{10D}{r} \cdot \frac{T}{10D} = \frac{VT}{r}$$