

الف) $\frac{2\sqrt{2}}{5} \times \frac{1}{2} = \frac{\sqrt{2}}{5} \rightarrow 27^\circ = \frac{\sqrt{2}}{5} \text{ Rad}$

ب) $\frac{2\sqrt{2}}{5} \times \frac{1}{2} = \frac{\sqrt{2}}{5} \rightarrow 125^\circ = \frac{\sqrt{2}}{5} \text{ Rad}$

ج) $\frac{2\sqrt{2}}{5} \times \frac{1}{2} = \frac{\sqrt{2}}{5} \rightarrow 50^\circ = \frac{\sqrt{2}}{5} \text{ Rad}$

د) $\frac{2\sqrt{2}}{5} \times \frac{1}{2} = \frac{\sqrt{2}}{5} \rightarrow 90^\circ = \frac{\sqrt{2}}{5} \text{ Rad}$

برای تبدیل گراد به رجب باید گراد را در $\frac{1}{9}$ و برای تبدیل رجب به گراد باید رجب را در 9 ضرب کرد.

$\frac{125}{9} \text{ Rad} = \frac{125}{9} \times \frac{\pi}{180} = 12.5^\circ$
 $22.5^\circ + 12.5^\circ + 10^\circ = 45^\circ = 180^\circ$
 $\frac{12}{9} \times \frac{18}{\pi} = \frac{18 \cdot 4}{\pi} = 22.5^\circ \Rightarrow d^\circ = 1^\circ$

ان) $\frac{1}{2} \times \frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2} \times \frac{1}{2} - 1 + 2 = 1$

ب) $\frac{\frac{1}{2} + 1 + 2}{\sqrt{2} - \frac{1}{\sqrt{2}}} = \frac{\frac{5}{2}}{\frac{\sqrt{2}-1}{\sqrt{2}}} = \frac{5\sqrt{2}}{2(\sqrt{2}-1)} = \frac{5\sqrt{2}}{2}$

$-\sin 30^\circ \cos 40^\circ + \cos 30^\circ \sin 40^\circ = \sin^2 \theta + \sin \theta = 1$
 $-\frac{1}{2} \times \frac{1}{2} + \frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} = \frac{2}{4} = \sin^2 \theta \Rightarrow \sin \theta = \frac{\sqrt{2}}{2} \Rightarrow \theta = 45^\circ \Rightarrow \sin \theta = 1$
 چون $\sin \theta = 1$ است

$\frac{2 + \sin 30^\circ \cos 40^\circ - \sin 40^\circ \cos 30^\circ}{1 - \cos 40^\circ} = \sin \theta \Rightarrow 2 \times \frac{1}{\sqrt{2}} \left(1 - \frac{1}{\sqrt{2}}\right) = \frac{2}{\sqrt{2}} \left(1 - \frac{1}{\sqrt{2}}\right) = \frac{2}{\sqrt{2}} \left(\frac{\sqrt{2}-1}{\sqrt{2}}\right) = \frac{2(\sqrt{2}-1)}{2} = \sqrt{2}-1$
 $\sin \theta = \sqrt{2}-1 \Rightarrow \theta = 40^\circ = \frac{\pi}{9}$
 زاویه حاده است

$9 \times \frac{\pi}{180}$

$$\tan \theta = \frac{1}{2}$$

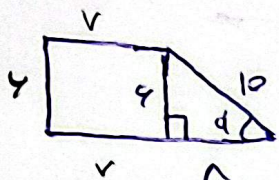
$$\cot \theta = \frac{1}{\tan \theta} = 2$$

$$\frac{\sin \theta - \cos \theta}{\sin \theta + \cos \theta} = 1$$

$$\frac{1}{\cos^2 \theta} = 1 + \tan^2 \theta = 1 + \frac{1}{4} = \frac{5}{4} \Rightarrow \cos^2 \theta = \frac{4}{5} \Rightarrow \cos \theta = \pm \frac{2}{\sqrt{5}}$$

$$\frac{1}{\sin^2 \theta} = 1 + \cot^2 \theta = 1 + 4 = 5 \Rightarrow \sin^2 \theta = \frac{1}{5} \Rightarrow \sin \theta = \pm \frac{1}{\sqrt{5}}$$

$$\sin \theta + \cos \theta = \sin \theta - \cos \theta = \frac{1}{\sqrt{5}} - \frac{2}{\sqrt{5}} = -\frac{1}{\sqrt{5}} \Rightarrow \sin \theta = \frac{1}{\sqrt{5}}, \cos \theta = -\frac{2}{\sqrt{5}}$$



$$V + 10 + 10 + 4 = 34$$

$$\sin 45^\circ = \frac{\sqrt{2}}{2} \Rightarrow BD = 5\sqrt{2}$$

$$\cos 45^\circ = \frac{1}{\sqrt{2}} \Rightarrow AB = 5$$

$$\cot 45^\circ = 1 \Rightarrow BC = 5$$

$$CD = 5\sqrt{2} - 5 = 5(\sqrt{2} - 1)$$



الف) ناحیه بی سر
ب) ناحیه بی دم

$$\tan x = \frac{1}{2} \Rightarrow \sin^2 x = \frac{1}{1 + \cot^2 x} = \frac{1}{1 + 4} = \frac{1}{5} \Rightarrow \sin x = \pm \frac{1}{\sqrt{5}} = -\frac{1}{\sqrt{5}}$$