

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

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

1, 18

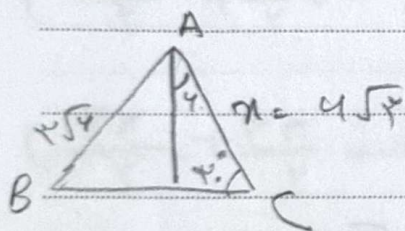
ب)  $\frac{1+1}{2+1} = \frac{2}{3} = \frac{1}{\frac{3}{2}}$   $\sin \theta = \frac{1}{\frac{3}{2}} = \frac{2}{3} = \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{2}}$

ج)  $(\frac{\sqrt{2}}{2})^2 = \frac{2}{2} \times 2 = 2$   $\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} = \frac{2}{2} \times 2 = 2$

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

الف) ②

$(2\sqrt{2})^2 - (\sqrt{2})^2 = 12 - 2 = 10 \rightarrow \sqrt{10} = 2 = HC$

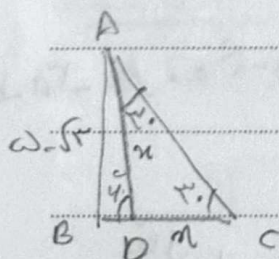


$2(9 = \frac{\sqrt{2}}{2} n) = 18 = \sqrt{2} n \rightarrow n = \frac{18}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{18\sqrt{2}}{2} = 9\sqrt{2}$

$\frac{2\sqrt{2}}{1} = \frac{9\sqrt{2}}{\sin B} \Rightarrow 4\sqrt{2} \sin B = 9\sqrt{2} \rightarrow \sin B = \frac{\sqrt{2}}{\sqrt{2} \times \sqrt{2}} = \frac{\sqrt{2}}{2}$

$\frac{18\sqrt{2}}{2} = 9\sqrt{2}$

B = 45°



$2(5\sqrt{2} = \frac{\sqrt{2}}{2} \times n)$

الف) ③

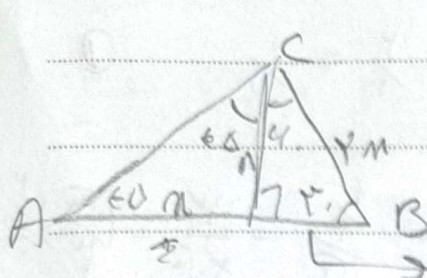
$10\sqrt{2} = \sqrt{2} n$

$n = 10$

$AB = 2$   $DC = \sqrt{2}$

ب) ④

$BC = \sqrt{2}$   $AC = 2$   $\sin \theta = \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{2}}$



$$n^2 + n^2 = 2n^2 \rightarrow \sqrt{2}n$$

$$\frac{AB}{AC} = \frac{n + \sqrt{2}n}{\sqrt{2}n} = \frac{1 + \sqrt{2}}{\sqrt{2}}$$

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

$$\frac{S_{ABE}}{S_{BCD}} = \frac{\frac{1}{2} \times 2 \times 2 \times \sin B}{\frac{1}{2} \times 4 \times 2 \times \sin B} = \frac{1}{4} = \frac{r}{1}$$

$$\frac{S_{ABE}}{S_{BCD}} = \frac{1}{4} = \frac{r}{1}$$

$$S_{\text{total}} = \frac{1}{2} \times 2 \times 2 \times \sin 45^\circ = 2 \times \frac{\sqrt{2}}{2} = \sqrt{2}$$

$$S_{\text{total}} = 2\sqrt{2} \times 2 = 4\sqrt{2}$$

$$\frac{1}{2} \times 2 \times 2 \times \sin 45^\circ \cdot \frac{\sqrt{2}}{2} = 2\sqrt{2}$$

$$P \mid \bar{r} \quad Q \mid r \quad y = a + b \quad r = 3a + b$$

$$r = -a + b$$

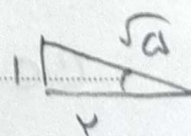
$$-(r + a + b - r) = 0 \Rightarrow -r - a - b + r = 0 \Rightarrow -a - b = 0$$

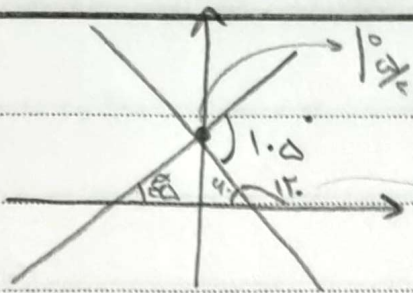
$$\begin{cases} -r - a - b + r = 0 \\ -a + b - r = 0 \end{cases}$$

$$-ra = -r \quad a = \frac{1}{r} \quad b = \frac{1}{r}$$

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

$$\cos \theta = \frac{r}{\sqrt{1+r^2}}$$





$$y = x + \cancel{\alpha} \rightarrow y = x$$

$$\tan \alpha = \frac{\sin \alpha}{\cos \alpha} = \frac{\frac{1}{\sqrt{2}}}{\frac{1}{\sqrt{2}}} = \frac{1/\sqrt{2}}{1/\sqrt{2}} = 1 = m \quad (1, 1)$$

$$y = mx + c \quad y = x + \cancel{\alpha} \quad \tan \alpha = 1 \quad \alpha = 45^\circ \quad mb = \sqrt{2} \times \frac{1}{\sqrt{2}} =$$

$$y = mx + b \rightarrow \cancel{\alpha} = c + b \quad b = \cancel{\alpha}$$

$$-\cos x + \cos x + \cancel{\alpha} \rightarrow \frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2} + -\sqrt{2} = -\sqrt{2}$$

$$\left( \frac{14\pi}{4} + \frac{\pi}{4} + x \right) = \sin\left(\frac{\pi}{4} + x\right) = \cos x$$

$$\left( \frac{14\pi}{4} + \frac{13\pi}{4} - x \right) = \cos\left(\frac{13\pi}{4} - x\right) = -\sin x$$

$$14\pi + x = 14\pi + \pi + x = \cos(\pi + x) = -\cos x$$

$$9\pi - x = \sin(9\pi - x) = -\sin x$$

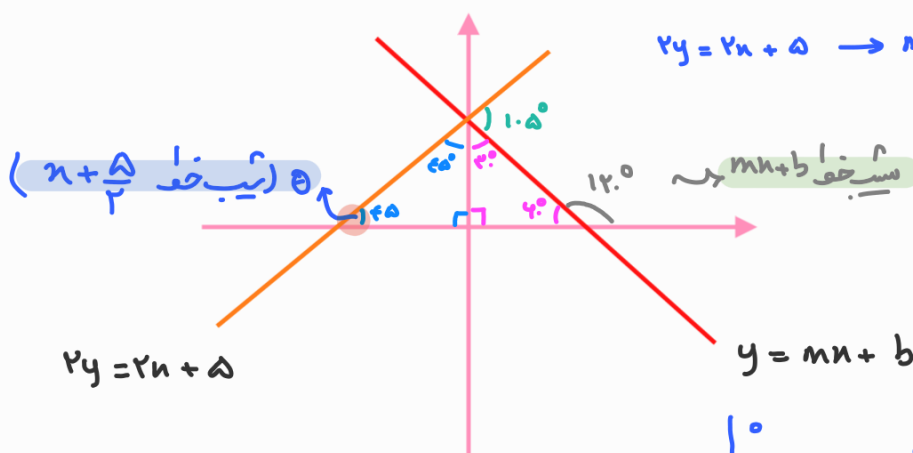
$$\frac{\cos x - \sin x}{-\cos x + \sin x} = \frac{-(\sin x - \cos x)}{\sin x - \cos x} = -1$$

الف)  $(\sin 145^\circ + \sin 35^\circ)(\cos 145^\circ - \cos 145^\circ)$

$$\left(\frac{\sqrt{2}}{2} - \frac{\sqrt{3}}{2}\right)\left(\frac{\sqrt{2}}{2} - \left(-\frac{\sqrt{3}}{2}\right)\right) = \left(\frac{\sqrt{2}}{2}\right)^2 - \left(\frac{\sqrt{3}}{2}\right)^2 = \frac{1}{2} - \frac{3}{2} = \boxed{-\frac{1}{2}}$$

$$\rightarrow \frac{1 + \tan^2 15^\circ}{\cos^2 35^\circ + \cos^2 25^\circ} = \frac{1 + 3\left(\frac{\sqrt{3}}{2}\right)^2}{4\left(\frac{\sqrt{3}}{2}\right)^2 + 4\left(-\frac{\sqrt{2}}{2}\right)^2} = \frac{1 + 1}{3 + 1} = \boxed{\frac{1}{2}}$$

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$$2y = 2x + 5 \rightarrow m=1 \rightarrow \tan \theta = 1 \rightarrow \theta = 45^\circ$$

(طبق شکل داده است)

$$2y = 2x + 5$$

$$y = mx + b \rightarrow m = \tan 14.5^\circ = -\sqrt{3}$$

$$\begin{matrix} 1 \\ 0 \end{matrix} \rightarrow \frac{5}{2} = -\sqrt{3}(\cdot) + b \rightarrow b = \frac{5}{2}$$

$$mb = -\sqrt{3} \times \frac{5}{2} = -\frac{5\sqrt{3}}{2}$$