

۲۰

نایب

$$\text{الف) } \left(\frac{\sqrt{2}}{2} - \frac{\sqrt{3}}{2} \right) \left(\frac{\sqrt{2}}{2} + \frac{\sqrt{3}}{2} \right) = \quad (1)$$

$$\frac{2}{4} - \frac{3}{4} = -\frac{1}{4}$$

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$$\text{ب) } \frac{1 + 2 \times \left(\frac{\sqrt{3}}{2} \right)^2}{2 \times \left(\frac{\sqrt{2}}{2} \right)^2 + 2 \times \left(-\frac{\sqrt{2}}{2} \right)^2} = \frac{2}{4} = \frac{1}{2}$$

$$\text{الف) } AH = \frac{\sqrt{12}}{2}$$

(۲) ضلع روبه روب زاویه ۴۵ درجه

$$\frac{\sqrt{2}}{2} \times \sqrt{2} = \frac{\sqrt{12}}{2}$$

۳) $\frac{\sqrt{2}}{2}$ وتر است.

$$AC^2 - AH^2 = CH^2$$

$$(2\sqrt{3})^2 - \left(\frac{\sqrt{12}}{2} \right)^2 = 12 - \frac{12}{4} = 9 \quad \boxed{CH = 3}$$

$$\text{ب) } A_1 = 90^\circ \quad AC = 4\sqrt{3}$$

ضلع روبه روب زاویه ۹۰ درجه

$$\frac{\sqrt{3}}{2} AC = 4$$

۳) $\frac{\sqrt{3}}{2}$ وتر است.

$$\frac{2\sqrt{4}}{\frac{1}{2}} = \frac{4\sqrt{3}}{\sin B} \Rightarrow \sin B = \frac{\sqrt{2}}{2} \rightarrow \boxed{B = 45^\circ}$$

الف) $AD = 100$

$AC = 100\sqrt{3}$

③ ضلع روبه روب زاویه ۳۰ درجه و وترات $\frac{\sqrt{3}}{2}$

ضلع روبه روب زاویه ۳۰ درجه و وترات ۱۰۰

$AC^2 - AB^2 = BC^2$

$30000 - 1500 = 22500 \rightarrow BC = 150$

$\triangle BAD \sim \hat{A} = 30^\circ \rightarrow BD = 50$

ضلع روبه روب زاویه ۳۰ درجه و وترات ۱۰۰

$BC - BD = 100 \rightarrow 150 - 50 = 100 = 100$

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$CD^2 = 12 + 1 \rightarrow CD = \sqrt{13}$

$\frac{BD}{DC} = \frac{1}{\sqrt{13}} \times \frac{\sqrt{13}}{13} \sin \alpha$

$B = 180 - (45 + 105) = 30$

④

$\frac{c}{b} = \frac{\sin C}{\sin B} \rightarrow \frac{c}{b} = \frac{0.95}{\frac{1}{2}} = 1.9$

$\sin(45 + 45) = \sin 45 \times \cos 45 + \sin 45 \times \cos 45$

$\sin(105) = \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} \times \frac{1}{2} = \frac{2.14 + 1.14}{2} = 0.95$

$$\frac{S_{ABE}}{S_{BCD}} = \frac{\frac{1}{4} ab \sin \alpha}{\frac{1}{4} ab \sin \alpha} = \frac{2 \times 4}{4 \times 2} = \boxed{\frac{1}{1}} \quad (2)$$

α همان B_1 و B_2 است و مقدار آن برابر است.

الف) $S = ab \sin \alpha \quad \alpha = 40^\circ$

$$S = \frac{\sqrt{13}}{4} \times 12 \times 4 = \boxed{4\sqrt{13}}$$

ب) $S = \frac{1}{4} ab \sin \alpha \quad \alpha = 40^\circ$

$$S = \frac{1}{4} \times 12 \times 4 \times \frac{\sqrt{13}}{4} = \boxed{3\sqrt{13}}$$

$$\frac{OQ}{PQ} = \frac{r}{r\sqrt{2}} = \frac{r\sqrt{2}}{2} \quad \text{--- (v)}$$

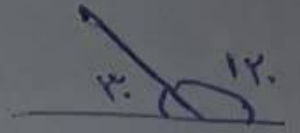
$$PQ = \frac{r}{\frac{r\sqrt{2}}{2}} \rightarrow PQ = \sqrt{2}r$$

$$y = m + r_1 \delta \rightarrow \cos \alpha = 1 \rightarrow \alpha = \epsilon \delta$$

①

$$y = mn + b$$

$$110 - (100 + \epsilon \delta) = r_0$$



$$\tan_{100} = -\sqrt{r_0}$$

$$y = -\sqrt{r_0} m + b \xrightarrow{r_1 \delta} b = r_1 \delta$$



$$bm = r_1 \delta \times -\sqrt{r_0}$$

$$f\left(\frac{\omega R}{c}\right) = \cos\left(\pi + \frac{\omega R}{c}\right) + \sin\left(\frac{R}{Y} - \frac{\omega R}{c}\right) - \tan\left(\frac{R}{Y} + \frac{\omega R}{c}\right) \quad (9)$$

$$= -\cos\left(\frac{\omega R}{c}\right) + \cos\left(\frac{\omega R}{c}\right) + \cot\left(\frac{\omega R}{c}\right)$$

$$= \frac{\sqrt{\mu}}{Y} - \frac{\sqrt{\mu}}{Y} - \sqrt{\mu} = -\sqrt{\mu}$$

$$\sin\left(\pi + \frac{\pi}{2} + n\right) + \cos\left(\pi + \frac{\pi}{2} - n\right)$$

(10)

$$\cos(\pi + n) - \sin(\pi - n)$$

$$\text{Cred} \rightarrow \sin\left(\frac{\pi}{2} + n\right) + \cos\left(\frac{\pi}{2} - n\right)$$

$$\cos(n) - \sin(n)$$

$$\text{Cred} \rightarrow \cos(\pi + n) - \sin(\pi - n)$$

$$- \cos(n) + \sin(n)$$

$$\rightarrow \frac{\cos(n) - \sin(n)}{- (\cos(n) - \sin(n))} = \boxed{-1}$$