

$$\hat{A} + \hat{B} + \hat{C} = 180^\circ$$

$$\hat{B} + \hat{C} = 120^\circ \Rightarrow \boxed{A = 90^\circ}$$

شعبه

3

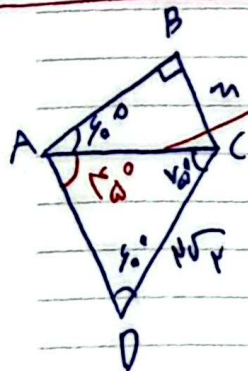
①

24 Sep. 2024
1446 ربيع الاول 20

$$\frac{2}{\sin A} = \frac{2\sqrt{2}}{\sin B} \Rightarrow \frac{2}{\sqrt{2}} = \frac{2\sqrt{2}}{\sin B}$$

$$\sin B = \frac{2\sqrt{2}}{\sqrt{2}} = 2 \Rightarrow \boxed{B = 150^\circ}$$

$$180 = 90 + 150 + \hat{C} \Rightarrow \boxed{C = 40^\circ}$$



$$\text{مقابل} = \frac{\sqrt{3}}{2} \Rightarrow \pi = \frac{\sqrt{3}}{2} AC \Rightarrow AC = \frac{2\pi}{\sqrt{3}}$$

$$180 - (90 + 40) = 50^\circ$$

$$\frac{\sin 90^\circ}{\frac{2\pi}{\sqrt{3}}} = \frac{\sin 50^\circ}{2\sqrt{2}} \Rightarrow \frac{\sqrt{3}}{2\pi} = \frac{\sqrt{2}}{2\sqrt{2}}$$

$$\boxed{\pi = 3}$$

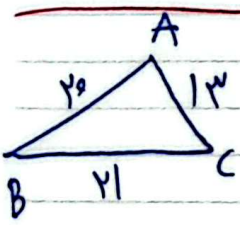
$$\pi_m = 2 \Rightarrow \frac{\pi}{\pi_m} = \frac{\sqrt{2}}{\sqrt{2}}$$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = k \Rightarrow b = k \sin B, c = k \sin C$$

$$\frac{(b^2 - 2) \sin C}{\sin B} = c \Rightarrow \frac{(b^2 - 2) \sin C}{\sin B} = k \sin C \Rightarrow b^2 - 2 = k \sin B = b$$

$$\Rightarrow b^2 - b - 2 = 0 \Rightarrow \boxed{b = 2}$$

$$b = -1 \text{ غير مقبولة}$$



$$\cos \text{مقابل} \Rightarrow (1\sqrt{2})^2 = (2)^2 + (2)^2 - 2(2)(2)(\cos B)$$

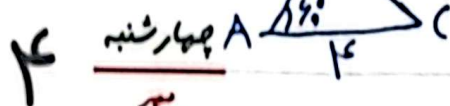
$$\Rightarrow 199 = 441 + 400 - 1600 \cos B \Rightarrow -4\sqrt{2} = -1600 \cos B$$

$$\sin B^2 + 0.194 = 1 \Rightarrow \sin B^2 + \cos B^2 = 1 \Rightarrow \boxed{\frac{1}{10} = \cos B} = \frac{4\sqrt{2}}{160}$$

$$\sin B^2 = 0.194 \Rightarrow \boxed{\sin B = 0.194}$$

25 Sep. 2024

1429 ربيع الأول 1446



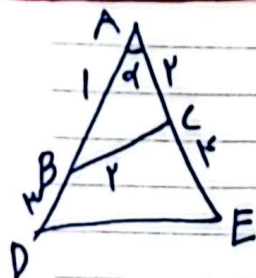
$$\cos 45^\circ \Rightarrow a^2 = (2)^2 + [2(1+\sqrt{2})]^2 - 2 \times 2 \times 2(1+\sqrt{2}) \cos 45^\circ$$

$$a^2 = 4 + 4 + 4\sqrt{2} - 4 - 4\sqrt{2}$$

$$\Rightarrow a^2 = 4 + 4 - 4 = 4 \Rightarrow a = 2\sqrt{2}$$

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

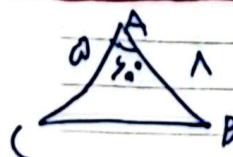
$$\boxed{C = 90^\circ} \leftarrow A + B + C = 180^\circ \Rightarrow 45^\circ + 45^\circ + C = 180^\circ \quad \boxed{B = 45^\circ}$$



$$BC^2 = AB^2 + AC^2 - 2ABAC \cos \alpha$$

$$x^2 = 1^2 + 1^2 - 2 \cos \alpha \Rightarrow \cos \alpha = \frac{1}{x}$$

$$DE^2 = AD^2 + AE^2 - 2ADAE \cos \alpha = 1^2 + 1^2 - 2 \times 1 \times 1 \times \frac{1}{x} = 2 - \frac{2}{x} \Rightarrow DE = \sqrt{2 - \frac{2}{x}} = \boxed{2\sqrt{1 - \frac{1}{x}}}$$



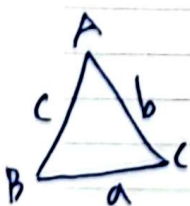
$$S_{ABC} = \frac{1}{2} \times 1 \times 1 \times \sin 45^\circ = \frac{1}{2} \times 1 \times 1 \times \frac{\sqrt{2}}{2} = \boxed{10\sqrt{2}}$$

$$\cos 45^\circ \Rightarrow (BC)^2 = 1^2 + 1^2 - 2 \times 1 \times 1 \times \cos 45^\circ$$

$$\boxed{BC = \sqrt{2}} \leftarrow (BC)^2 = 2 - 1 = 1 \Rightarrow BC = 1$$

$$\frac{(b+c)^2 - a^2}{bc(\cos A + 1)} = ? \quad \begin{matrix} b = a \\ c = 1 \\ a = \sqrt{2} \end{matrix} \Rightarrow \frac{(a+1)^2 - (a)^2}{a \times 1 \left(\frac{1}{\sqrt{2}} + 1\right)} = \frac{1+2\sqrt{2}+1-2}{\sqrt{2} \times \frac{1+\sqrt{2}}{\sqrt{2}}} = \frac{1}{1+\sqrt{2}} = \boxed{1}$$

فرض: $\cos 45^\circ = \frac{1}{\sqrt{2}}$



$$\frac{a^2 + b^2 - c^2}{a+b-c} = a$$

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$a^2 + b^2 - c^2 = a^2 + a^2b - a^2c$$

$$\Rightarrow b^2 - c^2 = a^2(b-c) \Rightarrow b^2 + c^2 + bc = a^2$$

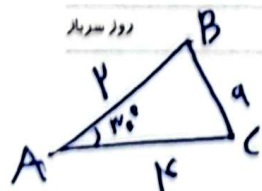
$$b^2 + c^2 + bc = b^2 + c^2 - 2bc \cos A$$

$$\Rightarrow \boxed{\cos A = -\frac{1}{2}}$$

$$S = \frac{1}{2} \times \sin 45^\circ \times (1 + \sqrt{2} \cos \theta) \Rightarrow$$

$$1 = \frac{1}{2} \times [1 + \sqrt{2} \cos \theta - \cos \theta - \sqrt{2} \cos^2 \theta] \Rightarrow 1 = 1 + \sqrt{2} \cos \theta - \sqrt{2} \cos^2 \theta$$

$$\sqrt{2} \cos \theta = \sqrt{2} \cos^2 \theta - \sqrt{2} \cos \theta + 1 \Rightarrow \sqrt{2} \cos \theta = \sqrt{2} \cos^2 \theta - \sqrt{2} \cos \theta + 1$$



$$\Rightarrow \cos 45^\circ \Rightarrow a^2 = 1^2 + 1^2 - 2 \times 1 \times 1 \times \cos 45^\circ$$

$$\Rightarrow \boxed{a^2 = 2 - \sqrt{2}}$$