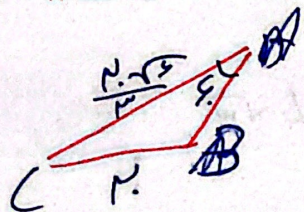


کلیف ۱۳



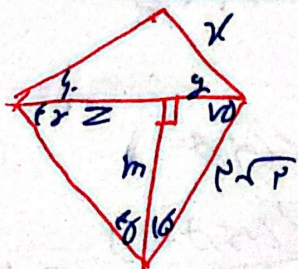
$$\Rightarrow \frac{b}{\sin B} = \frac{a}{\sin A} \Rightarrow \frac{12}{\sin B} = \frac{10}{\sin 135^\circ} = \frac{10}{\frac{\sqrt{2}}{2}} = \frac{20}{\sqrt{2}} = 10\sqrt{2}$$

مراد سامع

(۱)

$$\Rightarrow 12\sqrt{2} = 10\sqrt{2} \sin B \Rightarrow \sin B = \frac{12}{10} = \frac{6}{5} > 1$$

$\hat{B} = 45^\circ$
 $\hat{C} = 135^\circ$



$$\sin 45^\circ = \frac{6}{10} \Rightarrow \cos 45^\circ = \frac{8}{10} = \frac{4}{5}$$

(۲)

$$\Rightarrow y = \frac{6-8}{5} = -\frac{2}{5} \text{ and } x = \frac{6}{5}, m = \frac{6}{5}$$

$$\Rightarrow z = \frac{6}{5} \Rightarrow z \cdot y = \frac{6}{5} \cdot -\frac{2}{5} = -\frac{12}{25}$$

$$\Rightarrow x = \frac{6}{5} \text{ and } x \cdot y = -\frac{12}{25}$$

$$\frac{b}{\sin B} = \frac{c}{\sin C} \Rightarrow \frac{b \sin C}{\sin B} = c \Rightarrow b = \frac{c \sin B}{\sin C} = \frac{10 \sin 45^\circ}{\sin 135^\circ} = 10$$

(۳)

$$b^2 = c^2 + a^2 - 2ac \cos B \Rightarrow 14^2 = 10^2 + 10^2 - 2 \cdot 10 \cdot 10 \cos B$$

(۴)

$$\Rightarrow 196 = 200 - 40 \cos B \Rightarrow \cos B = \frac{4}{10} = \frac{2}{5} \Rightarrow \sin B = \frac{4}{5}$$

$$a^2 = b^2 + c^2 - 2bc \cos A \Rightarrow 14^2 = 10^2 + 10^2 - 2 \cdot 10 \cdot 10 \cos A$$

(۵) الف

$$\Rightarrow a^2 = 20 \Rightarrow a = \sqrt{20} = 2\sqrt{5}$$

$$\frac{2\sqrt{5}}{\sin B} = \frac{10}{\sin 45^\circ} \Rightarrow \sin B = \frac{2\sqrt{5}}{10} = \frac{\sqrt{5}}{5} \Rightarrow B = 26.5^\circ \Rightarrow C = 108.5^\circ$$

$$b^2 = c^2 + a^2 - 2ac \cos A \Rightarrow \cos A = \frac{1}{2}$$

(۶)

$$\Rightarrow DE = \frac{1}{2} \cdot 10 = 5$$

$$BC^2 = 4^2 + 2^2 - 2 \cdot 4 \cdot 2 \cdot \frac{1}{2} \Rightarrow BC = \sqrt{12} \quad (\text{الف}) \quad (\checkmark)$$

$$S = \frac{1}{2} \cdot 4 \cdot 2 \cdot \frac{\sqrt{3}}{2} = 2\sqrt{3} \quad \text{ب} \quad (\checkmark)$$

$$\frac{1}{2} (1^2 + 5^2) \cdot \frac{1}{2} = 1 \Rightarrow 1^2 + 5^2 - 1 \cdot 5 \cdot 2 = 0 \Rightarrow \cos = 1$$

$$\Rightarrow \text{Diagram of a triangle with sides 1, 5, and 1, and angle } A \Rightarrow 1^2 + 5^2 - \frac{1 \cdot 5 \sqrt{3}}{2} = 1^2 + 5^2 - 1 \cdot 5 \sqrt{3}$$

$$a^2 = b^2 + c^2 - 2bc \cos A \Rightarrow b^2 + c^2 - 2bc \cos A = a^2 \Rightarrow \frac{b^2 + c^2 - a^2}{2bc} = \cos A$$

$$\frac{(b^2 + c^2 - a^2)}{2bc} = \cos A \Rightarrow b^2 + c^2 - a^2 = 2bc \cos A$$

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

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

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

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