

تکلیف شماره ۱۳

پارسی نی راد ، دوازدهم دختر B

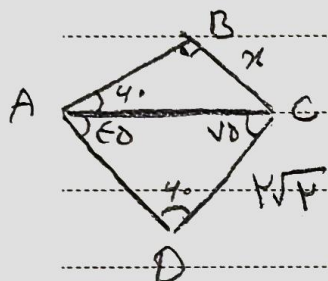
۲۰ آفرین

$$\hat{A} = 180^\circ - (\hat{B} + \hat{C}) = 180^\circ - 170^\circ = 10^\circ$$

(1)

$$\frac{BC}{\sin \hat{A}} = \frac{AC}{\sin \hat{B}} \Rightarrow \frac{20}{\frac{\sqrt{17}}{2}} = \frac{20\sqrt{4}}{\sin B} \Rightarrow \sin B = \frac{\sqrt{4}}{2}$$

$$\Rightarrow B = 40^\circ \quad C = 180^\circ - 50^\circ = 130^\circ$$



$$\frac{CD}{\sin 50^\circ} = \frac{AC}{\sin 40^\circ} \Rightarrow \frac{20\sqrt{4}}{\frac{\sqrt{17}}{2}} = \frac{AC}{\frac{\sqrt{17}}{2}} \quad (2)$$

$$\Rightarrow AC = 20\sqrt{17}$$

$$\sin 40^\circ = \frac{x}{20\sqrt{17}} = \frac{\sqrt{17}}{2}$$

$$x = 20$$

$$\frac{c}{\sin C} = \frac{b}{\sin B} \Rightarrow \frac{\sin C}{\sin B} = \frac{c}{b} \quad (3)$$

$$(b^2 - 2) \frac{c}{b} = 1$$

$$\frac{b^2 - 2}{b} = 1 \quad b^2 - b - 2 = 0$$

$$(b - 2)(b + 1) = 0 \quad b > 0, \quad b = 2$$

$$AC = \sqrt{AB^2 + BC^2 - 2AB \times BC \times \cos B}$$

$$(17)^2 = (20)^2 + (21)^2 - 2(20)(21) \cos B$$

$$149 = 400 + 441 - 840 \cos B \Rightarrow 840 \cos B = 692 \Rightarrow \cos B = 0.824$$

$$\cos B = 0.824$$

$$\sin B = \sqrt{1 - 0.824^2} = 0.564$$

$$a = \sqrt{c^2 + b^2 - 2bc \cos A} = \sqrt{(14 + 18\sqrt{10}) + 14 - 18 - 18\sqrt{10}} \quad (\delta)$$

$$= \sqrt{24} \quad \checkmark$$

$$\frac{\sin B}{b} = \frac{\sin A}{a} \Rightarrow \sin B = \frac{b \times \sin A}{a} \quad (ب)$$

$$\sin B = \frac{8 \times \frac{\sqrt{10}}{2}}{2\sqrt{4}} = \frac{\sqrt{10}}{\sqrt{4}} = \frac{1}{\sqrt{2}} \Rightarrow B = 45^\circ$$

$$C = 180^\circ - 45^\circ - 90^\circ = 45^\circ \quad \checkmark$$

$$BC^2 = 1 + 8 - 2(1)(8 \cos \alpha) = 8 \quad (4)$$

$$8 \cos \alpha = 1 \quad \cos \alpha = \frac{1}{8} \quad \checkmark$$

$$DE = \sqrt{14 + 14 - 12} = \sqrt{16} = 4 \quad \checkmark$$

$$BC = \sqrt{48 + 12 - 10(\cos 40^\circ)} = \sqrt{49} = 7 \quad \checkmark \quad (الف)$$

$$S_{ABC} = \frac{1}{2} \times 8 \times 1 \times \sin 40^\circ = 4 \times \frac{\sqrt{10}}{2} = 2\sqrt{10} \quad \checkmark \quad (ب)$$

$$\text{قانون كوسينوس} \rightarrow a^2 = b^2 + c^2 - 2bc \cos A \quad (ا)$$

$$\frac{(b^2 + c^2 + 2bc) - (b^2 + c^2 - 2bc \cos A)}{bc (\cos A + 1)} = \frac{2bc(1 + \cos A)}{bc(\cos A + 1)}$$

$$= 2 \quad \checkmark \quad \text{بسط}$$

$$a^2 + b^2 - c^2 = a^2 + a^2(b - c) \quad (9) \text{ فيد، فتجول}$$

$$(b - c)(b^2 + c^2 + bc) = a^2(b - c) \quad \text{قانون كوسينوس}$$

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

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

$$S_{\triangle ABC} = \frac{1}{r} (r - \cos \theta) (1 + r \cos \theta) (\sin r) (10$$

$$\Rightarrow S = r = \frac{1}{r} (-r \cos^2 \theta + 1 \cos \theta + r)$$

$$r \cos^2 \theta - 1 \cos \theta + r = 0 \quad \cos \theta = 1, \frac{d}{dr} \rightarrow \text{عقود}$$

$$\text{تأیید کیے ہوئے} \rightarrow a^2 = (r-1)^2 + (1+r)^2 - 2(r)(r)(1) \cos r$$

$$\Rightarrow a^2 = 8 + 14 - 1\sqrt{r} = 20 - 1\sqrt{r}$$