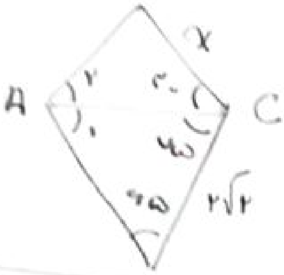
برهان سازان - دوازدهم تجربی B — به نام خدا — تکلیف شماره ۱۳

۲۰ آفرین

۱- $B+C=120 \to A=60$, $\frac{20}{\sin A} = \frac{\frac{20\sqrt{6}}{3}}{\sin B} \to \frac{\sqrt{2}}{2} = \sin B \to B=45^\circ \to C=75^\circ$

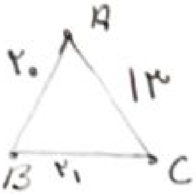
۲- $180-135=45 \to A_1=45$, $\frac{2\sqrt{2}}{\sin A} = \frac{AC}{\sin 60} \to AC=2\sqrt{3}$



$\frac{2\sqrt{3}}{\sin 90} = \frac{x}{\sin 60} \to x=3$

۳- $\frac{(b-2)\sin C}{\sin B} = c \to b^2-2 = b\sin B \cdot b \to b^2-2-b=0$, $b=2$, $b=-1$ ✗ , $b=2$

۴- $13^2 = 21^2 + 20^2 - 2(20 \times 21 \times \cos B) \to \cos B = 0.8 \xrightarrow{\cos^2\alpha+\sin^2\alpha=1} \sin B = 0.6$

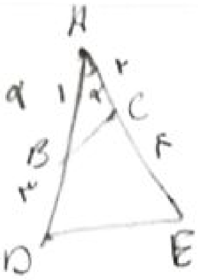


۵- $a = \sqrt{64+64+...} = 2\sqrt{6}$, $\frac{2\sqrt{6}}{\sin A} = \frac{4}{\sin C} \to \sin C = \frac{\sqrt{2}}{2} \to C=45^\circ$

$180 - (45+60) = 75 = B$, $B=75^\circ$

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

$DE^2 = AD^2 + AE^2 - 2AD \cdot AE \cos\alpha$

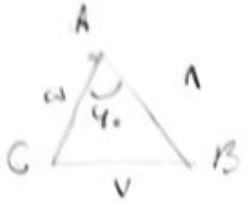


$4 = 6 - 4\cos\alpha \to \cos\alpha = \frac{1}{4}$

$DE^2 = 14,64$

$DE = \pm\sqrt{40} \xrightarrow[\text{قبول}]{\text{منفی غیرقابل}} 2\sqrt{10}$

$BC = \sqrt{25+64}$



$8 \times \frac{1}{2} \times 7 = \frac{1}{2} BC \cdot 7$

$S = \frac{1}{2} \times 5 \times 8 \times \frac{\sqrt{3}}{2} = 10\sqrt{3}$

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

$bc(1+\cos A)$

$2\,(bc + bc\cos A)$

$bc(\cos A + 1)$

$= 2$

$\frac{a^3 + b^3 - c^3}{a+b-c} \cdot a^2 \rightarrow a^3 + b^3 - c^3 + a^3 + a^2 b - a^2 c$

$b^3 - c^3 + a^2(b-c) \rightarrow (b-c)(b^2 + c^2 + bc) + a^2(b-c)$

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

$\hat{A} = 120^\circ$

$S = 2 \rightarrow \frac{(2-\cos\alpha)(1+\cos 2\alpha)}{4} \cdot 2$

$2 + 2\cos 2\alpha - \cos\alpha - \cos 2\alpha = 4$

$2\cos^2\alpha + \cos\alpha - 3 = 0 \rightarrow (\cos\alpha - 1)(\cos\alpha + \frac{3}{2})$

$\cos\alpha = 1 \rightarrow 2 - 1 = 1$

$\cos\alpha = -\frac{3}{2} \times$

$2 - \sqrt{3}$