۲۰ آفرین

هلیا دوظالبهی ...

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$A = 60^{\circ} \Rightarrow \dfrac{20}{\frac{\sqrt{3}}{2}} = \dfrac{\frac{20\sqrt{6}}{3}}{\sin B} \Rightarrow B =$

$\dfrac{\sqrt{6} \times \frac{\sqrt{3}}{2}}{3} = \dfrac{\sqrt{2}}{2} \Rightarrow B = 45$

$120 - 45 = 75$ ✓

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$180 - 60 - 75 = 45 \Rightarrow \dfrac{2\sqrt{2}}{\frac{\sqrt{2}}{2}} = \dfrac{AC}{\frac{\sqrt{3}}{2}} \Rightarrow AC = \sqrt{3}$

$\dfrac{2\sqrt{3}}{1} = \dfrac{n}{\frac{\sqrt{3}}{2}} \Rightarrow n = 3$ ✓

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$\dfrac{c}{\sin C} = \dfrac{b^2 - 2}{\sin B} = \dfrac{b}{\sin B} \Rightarrow b^2 - b - 2 = 0$

$(b-2)(b+1)$ — ۲ ق‌ق ، ۱- غ‌ق ✓

$\Rightarrow b = 2$

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$(20)^2 + (21)^2 - 2 \times 20 \times 21 \times \cos \hat{B} = (13)^2$

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$400 + 441 - 169 = 840 \cos B \Rightarrow 672 = 840 \cos B \Rightarrow$

$\cos B = \frac{8}{10} \Rightarrow \sin B = \frac{6}{10}$ ✓

$1 - \cos^2 \alpha = \sin^2 \alpha$

$1 - \frac{64}{100} = \frac{36}{100} =$

$4+4\sqrt{2}$

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

$16 + 4(1+\sqrt{2})^2 - 2 \times \frac{1}{2} \times 4 \times (2+2\sqrt{2})$

$4 + 4 + 8\sqrt{2} - 8 - 8\sqrt{2} = 32 \Rightarrow$ $a = \sqrt{32}$

$\frac{a}{\sin A} = \frac{b}{\sin B} \Rightarrow \frac{\sqrt{32}}{\frac{\sqrt{2}}{2}} = \frac{2}{\sin \alpha}$

$\frac{\frac{\sqrt{2}}{2} \times 4}{\sqrt{2}\sqrt{32}} \Rightarrow \frac{2}{8\sqrt{2}} \Rightarrow \frac{\sqrt{2}}{8} \Rightarrow \hat{B} = 45^\circ$

$180 - 60 - 45 = 75$

$\hat{C} = 75^\circ$

$\Delta ABC \Rightarrow 1^2 + 2^2 - 2 \times \alpha \times 1 \times 2 = 4$

$1 + 4 - 4\alpha = 4 \Rightarrow \alpha = \frac{1}{4}$

$AE^2 = (4)^2 + (4)^2 - 2 \times (\frac{1}{4}) \times 4 \times 4 \Rightarrow$

$32 + 32 - 16 = 48 \Rightarrow$ $AE = \sqrt{48}$

$BC^2 = (8)^2 + (5)^2 - 2 \times 5 \times 8 \times \cos 60 \Rightarrow 64 + 25 - 40 = 49$

$\Rightarrow CB = 7$

$\frac{1}{2} \times 5 \times 8 \times \sin 60 \frac{\sqrt{3}}{2} = 10\sqrt{3}$

۱۳ -

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

(۲)

$$\frac{0}{0} \Rightarrow \frac{\frac{u}{u}}{2} \Rightarrow \text{جواب ما} = 2$$

ل صورت و مخرج بیاید (؟) ✓

۱۴ -

$$\frac{a^3+b^3-c^3}{a+b-c} = a^2 \Rightarrow a^3+b^3-c^3 = a^3+a^2b-a^2c \Rightarrow$$

(۲)

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

$$b^2+c^2+cb = a^2 \Rightarrow \cos \text{ با توجه به رابطه ما}$$

$$+cb = -2\cos a \times cb$$

$$\Rightarrow \cos a = -\frac{1}{2} = \quad \text{درجه } 120$$

۱۵ -

$$(1+3\underbrace{\cos\theta}_{t})(3-\underbrace{\cos\theta}_{t}) \times \sin 30 = \frac{1}{2} = 2 \Rightarrow$$

(۲)

$$3 + \cancel{t} - 3t^2 + 9t + 3 = 8 \Rightarrow -3t^2+8t-5 \Rightarrow$$

$$3t^2 + 8t + 15 = 0$$

$$(t+3)(t+5) = 0$$

$$\cos = 1 \text{ بود} \Leftarrow \cos \text{ با توجه به} \quad \Rightarrow t = +1 \text{ و } t = +\frac{5}{3}$$

$$\text{ب} = 3 \quad ; \quad \text{ج} = 4 \quad \Rightarrow (4)^2 + (3)^2 = 2 \times 3 \times 4 \times \cos 30 \pm a^2 \quad \left(\frac{\sqrt{3}}{2}\right)$$

$$16+9 - 8\sqrt{3} = a^2$$

$$a^2 = 25 - 8\sqrt{3} \checkmark$$