حل سؤالات دوم ...

۱-

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

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

$120-45=\underline{75}$

۲-

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

$\dfrac{2\sqrt{3}}{\frac{\sin 90}{1}} = \dfrac{a}{\frac{\sin 60}{\frac{\sqrt{3}}{2}}} \Rightarrow \underline{a=3}$

۳-

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

$(b-2)(b+1)$ → 2 ق ، -1 غ ق

$\Rightarrow b=2$

۴-

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

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

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

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

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

۲+۲√۳

۵- الف)

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

$16 + 4(1+\sqrt{3})^2 - 2 \times \frac{1}{2} \times 4 \times (2+2\sqrt{3})$

$16 + 16 + 8\sqrt{3} - 8 - 8\sqrt{3} = 24 \Rightarrow$ $\underline{a = \sqrt{24}}$

ب)

$\frac{a}{\sin A} = \frac{b}{\sin B} \Rightarrow \frac{\sqrt{24}}{\frac{\sqrt{3}}{2}} = \frac{4}{\sin B}$

$\frac{\frac{\sqrt{3}}{2} \times 4}{\sqrt{24}\sqrt{8}} \Rightarrow \frac{2}{2\sqrt{2}} \Rightarrow \frac{\sqrt{2}}{2} \Rightarrow \hat{B} = 45^\circ$

$180 - 60 - 45 = 75$

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

۶-

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

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

$\overset{\Delta}{ADE}$

$DE^2 = (4)^2 + (6)^2 - 2 \times (\frac{1}{4}) \times 4 \times 6 \Rightarrow$

$16 + 36 - 12 = 40 \Rightarrow \underline{DE = \sqrt{40}}$

۷- الف)

$CB^2 = (8)^2 + (5)^2 - 2 \times 5 \times 8 \times \cos 60 \Rightarrow 64 + 25 - 40 = \underline{49}$

$\Rightarrow \underline{CB = 7}$

ب)

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

۸-

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

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

به سمت ما ابن تر ن ند

۹-

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

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

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

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

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

۱۰-

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

(زیر $\cos\theta$ ها: t)

$$4 + -3t^2+8t+3 = 8 \Rightarrow -3t^2+8t-5 = 0$$

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

$$(t+2)(t+5) = 0$$

$$\cos t 1 \text{ چون } \cos \text{ بود با توجه به} \Rightarrow t = +1 \text{ یا } t = \frac{+5}{3}$$

$$\text{ب} 1 = 2 \Rightarrow (4)^2+(3)^2 = 2\times 2\times 4\times \cos 45 \pm a^2 \quad \frac{\sqrt{2}}{2}$$

$$+ \text{ج} = 4 \qquad 16+4 - 8\sqrt{2} = a^2$$

$$a^2 \quad 20 - 8\sqrt{2}$$