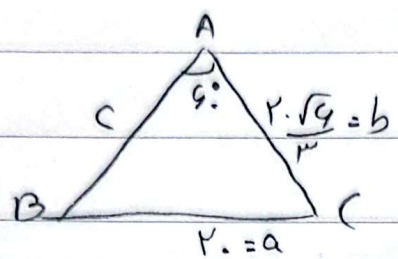


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هستند محاسبه با این روش و تکلیف ۱۳

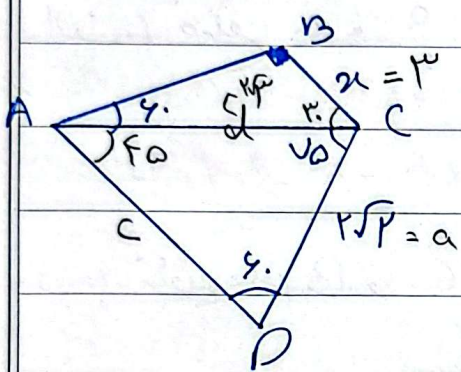
زاویه های B و C ، $AC = \frac{2\sqrt{2}}{3}$ ، $\hat{B} + \hat{C} = 120^\circ$ ، $BC = 2$. - ۱
 $\hat{A} = 60^\circ$ ، $C = 45^\circ$



$$\frac{b}{\sin B} = \frac{a}{\sin A} = \frac{c}{\sin C}$$

$$\rightarrow \sin B = \frac{\sqrt{12}}{4} = \frac{3\sqrt{2}}{4} = \frac{\sqrt{2}}{2} \rightarrow B = 45^\circ$$

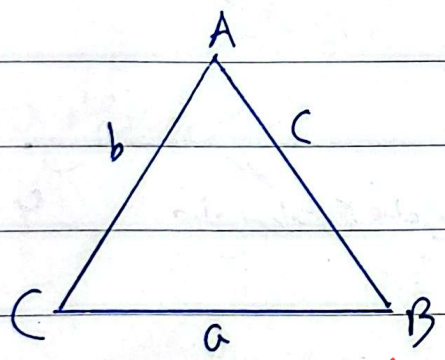
$$\frac{\frac{2\sqrt{2}}{3}}{\sin B} = \frac{2}{\sin C} \Rightarrow \sin C = \frac{3}{2\sqrt{2}} = \frac{\sqrt{2}}{2} \Rightarrow C = 45^\circ$$



$$120^\circ - (45^\circ + 45^\circ) = 30^\circ$$

$$\frac{\frac{2\sqrt{2}}{3}}{\frac{\sqrt{2}}{2}} = \frac{d}{\frac{\sqrt{2}}{2}} \Rightarrow d = \frac{4\sqrt{2}}{3} = \frac{4\sqrt{2}}{3}$$

$$\frac{2\sqrt{2}}{1} = \frac{x}{\frac{\sqrt{2}}{2}} \rightarrow x = 2\sqrt{2} \times \frac{\sqrt{2}}{2} = 2$$



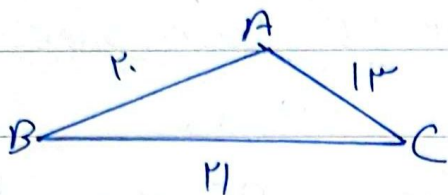
$$b = 2\sqrt{2} \quad (b^2 - r) \frac{\sin C}{\sin B} = c \quad - 2$$

$$\frac{(b^2 - r)}{\sin B} = \frac{c}{\sin C} = \frac{b}{\sin B}$$

$$\frac{c}{\sin C} = \frac{b}{\sin B}$$

$$b^2 - r = b$$

$$b^2 - r - b = 0 \rightarrow (b - r)(b + 1) = 0 \rightarrow b = r = 1$$

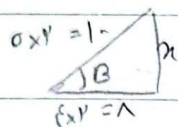


$$\sin B = \frac{1}{2} \quad - \text{r}$$

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$149 = 100 + 100 - 2(10)(10) \cos B \quad (y)$$

$$149 = 200 - 400 \cos B$$



$$\alpha = 1 \times 2 = 2$$

$$\cos B = \frac{1}{2} \quad \checkmark$$

$$\sin B = \frac{\sqrt{3}}{2} \quad \checkmark$$

$$\hat{A} = 90^\circ, \quad C = 2(1 + \sqrt{3}), \quad b = 4 \quad - \text{d}$$

$$(2 + 2\sqrt{3})^2 = 4 + 12 + 8\sqrt{3} = 16 + 8\sqrt{3}$$

الف. ضلع a

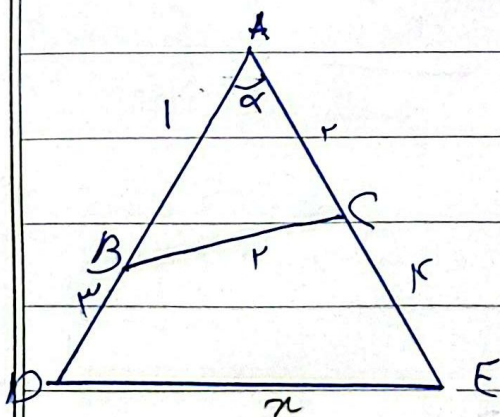
$$a^2 = b^2 + c^2 - 2bc \cos \hat{A} \rightarrow a^2 = 16 + 16 + 8\sqrt{3} - 2(4)(2 + 2\sqrt{3})$$

$$a = \sqrt{16} \quad \checkmark \quad \leftarrow \quad a^2 = 32 + 8\sqrt{3} - 16 - 8\sqrt{3} = 16$$

ب. زاویه های B و C

$$\frac{\frac{\sqrt{3}}{2}}{\frac{\sqrt{3}}{2}} = \frac{1}{\sin B} = \frac{2(1 + \sqrt{3})}{\sin C} \rightarrow C = 180^\circ - (90^\circ + 60^\circ) = 30^\circ$$

$$\frac{\sqrt{3}}{2} = \frac{1}{\sin B} \rightarrow \sin B = \frac{\sqrt{3}}{2} \rightarrow B = 60^\circ \quad \checkmark$$



ضلع بیضی ک ضلع د

$$a^2 = b^2 + c^2 - 2bc \cos \hat{A} \quad (y)$$

$$1 = 1 + 1 - 2(1)(1) \cos \alpha$$

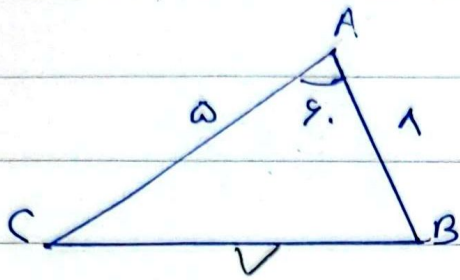
$$1 \cos \alpha = 1 \rightarrow \cos \alpha = \frac{1}{2} \quad \checkmark$$

$$\alpha^2 = \frac{32}{4} + 14 - 2(4)(8) \cos \alpha$$

$$\alpha^2 = 16 \rightarrow \alpha = 4 \quad \checkmark$$

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الف طول BC
 $BC^2 = 4^2 + 1^2 - 2(4)(1) \cos 45^\circ$
 $BC^2 = 17 - 4 = 13 \rightarrow BC = \sqrt{13}$

ب. المساحة ABC

$$S_{ABC} = \frac{1}{2} \times a \times b \times \sin A = 1 \cdot \sqrt{13}$$

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

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

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

كسینوس زاویه در ضلع a

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

$$a^2 + b^2 - c^2 = a^2 + a^2 b - a^2 c$$

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

قضیه کسینوس $\rightarrow a^2 = b^2 + c^2 - 2bc \cos A$

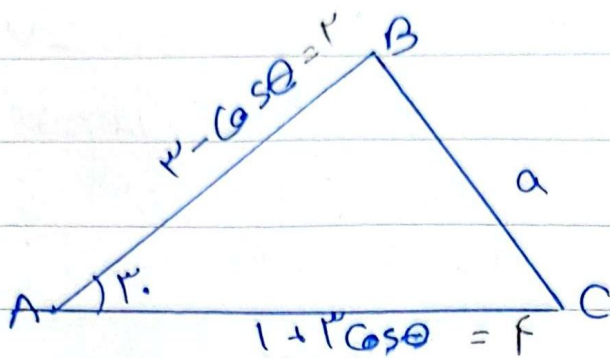
$$b^2 + c^2 + bc = b^2 + c^2 - 2bc \cos A$$

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

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$$A = 120^\circ$$



$$a^2 = 9, r = 2 \text{ cm} \text{ only } -1.$$

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

$$(1 + r \cos \theta) (r - \cos \theta) = 1$$

$$r - \cos \theta + r \cos \theta - r \cos^2 \theta = 1$$

$$r \cos^2 \theta - 1 \cos \theta + 1 < 0 \rightarrow a + b + c < 0$$

$$\cos \theta = 1 \quad \text{عزق 5} \quad \text{کینوس از ایشیر}$$

$$a^2 = 14 + f - r(r)(r) \cos \theta \quad \frac{\sqrt{3}}{r}$$

$$a^2 = 14 - 1\sqrt{3}$$

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