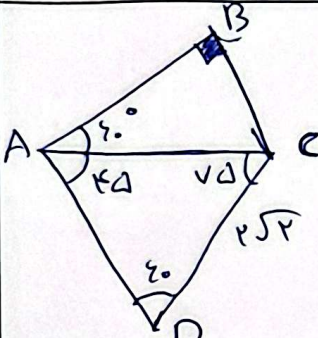


$$\frac{2.56}{\frac{\sqrt{3}}{2}} = \frac{2}{\sin B} \rightarrow \sin B = \frac{\sqrt{2}}{2} \rightarrow \boxed{B = 45^\circ}$$

$$B + C = 120 \rightarrow \boxed{C = 75^\circ}$$

۱



$$\frac{2.56}{\frac{\sqrt{3}}{2}} = \frac{AC}{\frac{\sqrt{3}}{2}} \rightarrow AC = 2.56$$

$$\frac{2.56}{1} = \frac{BC}{\frac{\sqrt{3}}{2}} \rightarrow \boxed{BC = 2}$$

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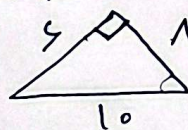
$$\frac{b}{\sin B} = \frac{c}{\sin C} \rightarrow c = \frac{b \times \sin C}{\sin B} = (b^2 - 2) \frac{\sin C}{\sin B}$$

$$\rightarrow b = b^2 - 2 \rightarrow b + 2 = b^2 \rightarrow \boxed{b = 2}, \text{ } \times$$

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$$13^2 = 2^2 + 21^2 - 2(2)(21)(\cos B) \rightarrow 472 = 140 \cos B$$

$$\frac{1}{10} = \cos B \rightarrow \boxed{\sin B = \frac{6}{10}}$$



۴

الف) $a^2 = 4^2 + (2+2\sqrt{3})^2 - 2(4)(2+2\sqrt{3})(\frac{1}{2}) \rightarrow a^2 = 24 \rightarrow$

$$\frac{2\sqrt{6}}{\frac{\sqrt{3}}{2}} = \frac{4}{\sin B} = \frac{2+2\sqrt{3}}{\sin C} \rightarrow \sin B = \frac{\sqrt{3}}{\sqrt{6}} \rightarrow \boxed{B = 45^\circ} \rightarrow a = 2\sqrt{6}$$

$$\sin C = \frac{2+\sqrt{3}}{2\sqrt{6}} \rightarrow \boxed{C = 75^\circ}$$

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$$r = 1 + r - 2(1)(r)(\cos A) \rightarrow \cos A = \frac{1}{r}$$

$$(DE)^2 = 1^2 + r^2 - 2(1)(r)\left(\frac{1}{r}\right) \rightarrow (DE)^2 = r^2 \rightarrow DE = r\sqrt{10}$$

$$\text{الف) } (BC)^2 = 10 + 4r^2 - (1)(0)(1)\left(\frac{1}{r}\right) \rightarrow BC = r$$

$$\text{ب) } \delta = \frac{1}{r} \times \frac{\sqrt{r}}{r} \times \frac{r}{\sqrt{r}} = \boxed{1.5r}$$

$$\text{قضيه كوساينوس} = a^2 = b^2 + c^2 - 2bc \cos A$$

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

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

$$b^2 - c^2 = a^2b - a^2c \rightarrow b(b^2 - a^2) - c(c^2 - a^2) = 0$$

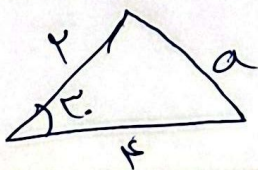
$$-(b - c)(a^2 - b^2 - bc - c^2) = 0 \rightarrow a^2 = b^2 + bc + c^2 \quad \left(-\frac{1}{r}\right)$$

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$$b^2 + c^2 - 2bcc \cos \theta = b^2 + c^2 + bc \rightarrow \cos \theta = \frac{bc}{-2bc}$$

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

$$r \cos^2 \theta - \cos \theta + 1 = 0 \rightarrow \cos \theta = \frac{1}{r}$$



$$a^2 = 1 + 1 - 1\left(\frac{1}{r}\right) \rightarrow a^2 = 2 - \frac{1}{r}$$