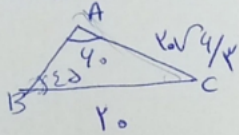


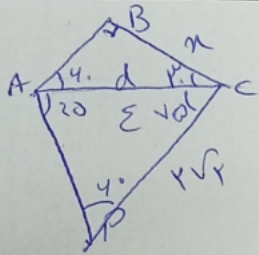
نام و نام خانوادگی حسین حسینی پاسخنامه تشریحی تکلیف شماره کلاس پایه دهم

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



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

$$\frac{2\sqrt{2}}{\sin B} = \frac{2}{\sin 45^\circ} \Rightarrow \sin B = \frac{2\sqrt{2} \times \frac{1}{\sqrt{2}}}{2} = 1 \Rightarrow B = 90^\circ$$



$$\frac{d}{\sqrt{2}} = \frac{2\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{\sqrt{2}} = 2$$

$$\frac{1}{\varepsilon} = \frac{n}{\sin 45^\circ \cdot \sqrt{2}} \Rightarrow n = \frac{1}{\sqrt{2}} \times \sqrt{2} = 1$$

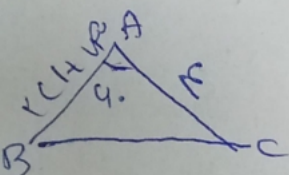
$$\frac{c}{\sin C} = \frac{b}{\sin B} \Rightarrow \frac{\sin C}{\sin B} = \frac{c}{b}$$

$$(b^2 - 1) \frac{c}{b} = c \Rightarrow b^2 - b - 1 = 0 \Rightarrow b = 2 \text{ or } b = -1$$

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

$$149 = 200 + 221 - 2(2)(\sqrt{2}) \cos B \Rightarrow \cos B = \frac{1}{\sqrt{2}} \Rightarrow \sin B = \frac{1}{\sqrt{2}}$$

$$\cos B = \frac{1}{\sqrt{2}} \Rightarrow \sin B = \frac{1}{\sqrt{2}}$$



$$a^2 = b^2 + c^2 - 2bc \cos 45^\circ$$

$$a^2 = 14 + 14 + 1\sqrt{2} - 2 \times 2 \times \sqrt{2} \times \frac{1}{\sqrt{2}} = 22 - 2\sqrt{2}$$

$$\frac{\sqrt{2}}{\frac{1}{\sqrt{2}}} = \frac{1}{\sin B} \Rightarrow \sin B = \frac{1}{2} \Rightarrow B = 30^\circ$$

$$22 + 1\sqrt{2} - 2 - 1\sqrt{2} = 20 \Rightarrow a = \sqrt{20}$$

$$r = 1 + r - r \times r \times \cos \alpha \rightarrow -1 = -r \cos \alpha \rightarrow \cos \alpha = \frac{1}{r}$$

$$DE^2 = 14 + r^2 - r \times 2 \times 4 \cos \alpha$$

$$DE^2 = r_0 \quad \checkmark$$

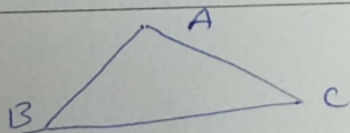
$$DE = \sqrt{r_0} = r \sqrt{r} \quad \checkmark$$

$$BC^2 = r^2 + 4^2 - r \times 2 \times 4 \cos \alpha \quad \frac{1}{r} = \frac{29}{r} \rightarrow BC = \sqrt{r}$$

$$S = \frac{1}{2} \times 2 \times \sqrt{r} \times \frac{\sqrt{r}}{r} = 10 \sqrt{r} \quad \checkmark$$

$$\frac{b^2 + c^2 + rbc - \frac{a^2}{b^2 + c^2 - rbc \cos A}}{rbc + rbc \cos A} = r \quad \checkmark$$

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



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

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

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

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

$$\rightarrow \cos A = -\frac{1}{r} \rightarrow$$

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

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

$$-r \cos^2 \theta + 1 \cos \theta - 1 = 0$$

$$\cos \theta = +1 \quad \text{or}$$

$$\cos \theta = \left(\frac{1}{r} \right) \frac{1}{r}$$

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

$$a^2 = 14 + r^2 - \frac{14 \sqrt{r}}{r}$$

$$= r_0 - \frac{14 \sqrt{r}}{r}$$

