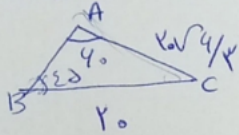


نام و نام خانوادگی عباس حسینی پاسخنامه تشریحی تکلیف شماره کلاس پایه نهم

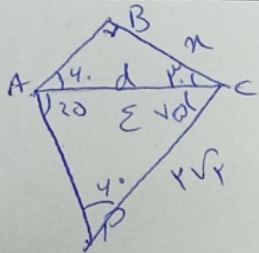
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$



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

$$\frac{2\sqrt{2}}{\sin B} = \frac{2}{\sin 40^\circ} \Rightarrow \sin B = \frac{2 \times \sin 40^\circ}{2\sqrt{2}} = \frac{\sin 40^\circ}{\sqrt{2}}$$

$$C = 100^\circ \rightarrow B = 40^\circ$$



$$\frac{d}{\sin 40^\circ} = \frac{2\sqrt{2}}{\sin 40^\circ} = \frac{2\sqrt{2}}{\sin 40^\circ} = 2$$

$$\frac{1}{\sin 40^\circ} = \frac{n}{\sin 40^\circ \cdot \sqrt{2}} \rightarrow n = 2\sqrt{2} \times \sqrt{2} = 4$$

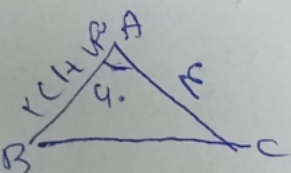
$$\frac{c}{\sin C} = \frac{b}{\sin B} \rightarrow \frac{\sin C}{\sin B} = \frac{c}{b}$$

$$(b^2 - 1) \frac{c}{b} = 0 \rightarrow b^2 - b - 1 = 0 \rightarrow \begin{cases} b = 2 \\ b = -1 \end{cases}$$

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

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

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



$$a^2 = b^2 + c^2 - 2bc \cos 40^\circ$$

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

$$22 + 1\sqrt{2} - 1 - 1\sqrt{2} = 22$$

$$a = \sqrt{22}$$

$$\frac{\sqrt{22}}{\sin B} = \frac{2}{\sin 40^\circ} \rightarrow \sin B = \frac{2 \sin 40^\circ}{\sqrt{22}}$$

$$B = 40^\circ$$

$$C = 100^\circ$$

$$r = \frac{1+r}{2} - r \times 1 \cos \alpha \rightarrow -1 = -r \cos \alpha \rightarrow \cos \alpha = \frac{1}{r}$$

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

$$DE^2 = r^2$$

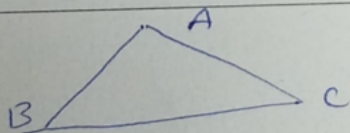
$$DE = \sqrt{r^2} = r$$

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

$$S = \frac{1}{2} \times 4 \times r \times \frac{\sqrt{r}}{r} = 10\sqrt{r}$$

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

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



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

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

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

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

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

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

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

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

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

$$\cos \theta = \left(\frac{a}{r} \right) \vec{u} \cdot \vec{v}$$

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

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

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

