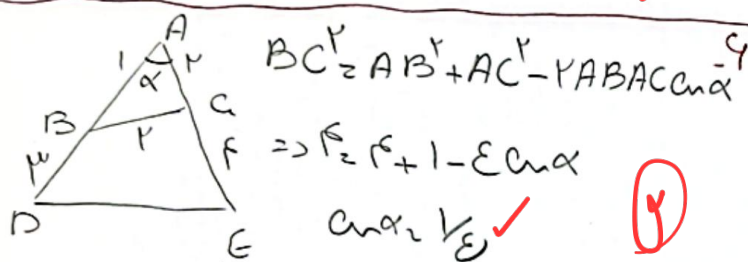


$$BC^2 = AB^2 + AC^2 - 2AB \cdot AC \cdot \cos 45^\circ$$

$$\Rightarrow \sqrt{1 + 1 + 1\sqrt{2} - 1 - 1\sqrt{2}} \Rightarrow BC = \sqrt{2}$$

$$\frac{\sqrt{2}}{\sin 45^\circ} = \frac{1}{\sin C} \Rightarrow \sin C = \frac{\sqrt{2}}{2} \Rightarrow C = 45^\circ$$

$$\frac{\sqrt{2}}{1} \Rightarrow 45^\circ + 45^\circ + B = 180^\circ \Rightarrow B = 90^\circ$$



$$BC^2 = AB^2 + AC^2 - 2AB \cdot AC \cdot \cos \alpha$$

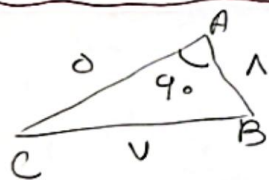
$$\Rightarrow 1^2 = 1^2 + 1^2 - 2 \cdot 1 \cdot 1 \cdot \cos \alpha$$

$$\cos \alpha = \frac{1}{2} \Rightarrow \alpha = 60^\circ$$

$$DE^2 = AD^2 + AE^2 - 2AD \cdot AE \cdot \cos \alpha$$

$$\Rightarrow 1^2 = 1^2 + 1^2 - (1 \times 1) \cdot \cos \alpha \Rightarrow \cos \alpha = \frac{1}{2}$$

$$\Rightarrow DE = \sqrt{1} \Rightarrow \boxed{DE = 1}$$

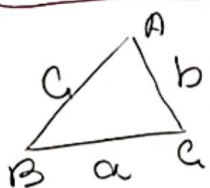


$$BC^2 = AB^2 + AC^2 - 2AB \cdot AC \cdot \cos 90^\circ$$

$$\Rightarrow 1^2 + 1^2 - (1 \times 1) \cdot \cos 90^\circ = 2$$

$$\Rightarrow \boxed{BC = \sqrt{2}}$$

$$I = \frac{1}{p} \times 1 \times 1 \times \sin 90^\circ = \frac{1}{2}$$



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

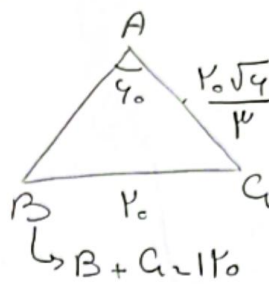
$$a^2 = c^2 + b^2 - 2bc \cos A$$

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

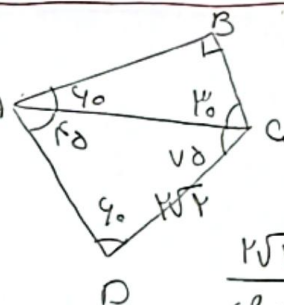
$$= \frac{b^2 + c^2 + 2bc - (c^2 + b^2 - 2bc \cos A)}{bc \cos(A+1)}$$

$$\frac{2bc + 2bc \cos A}{bc \cos(A+1)} = \boxed{2}$$

مساحة المثلث = $\frac{1}{2} \times 1 \times 1 \times \sin 90^\circ = \frac{1}{2}$



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



$$A + B + C + D = 360^\circ$$

$$45^\circ + 10^\circ + 90^\circ + D = 360^\circ$$

$$\frac{\sqrt{2}}{\sin 45^\circ} = \frac{AC}{\sin 45^\circ} \Rightarrow AC = \sqrt{2}$$

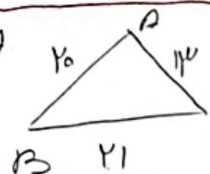
$$\sin 90^\circ = \frac{BC}{AC} = \frac{\sqrt{2}}{1} \Rightarrow \boxed{BC = \sqrt{2}}$$

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

$$\frac{(b^2 - 1) \sin A}{\sin B} = m \Rightarrow b^2 - 1 = m \sin B$$

$$b^2 - b - 1 = 0 \Rightarrow \boxed{b = 2}$$

$$b = 1 \Rightarrow \text{no solution}$$

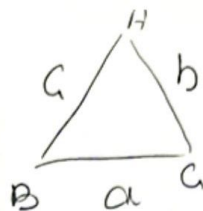


$$AC^2 = 1^2 + 1^2 - (1 \times 1 \times \cos 45^\circ) = 2$$

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

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

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



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

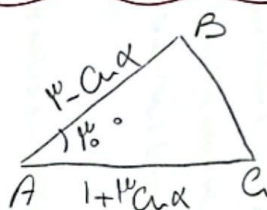
$$\rightarrow a^r + b^r - c^r = a^r + a^r b - a^r c$$

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

$$\Rightarrow b^r + c^r + bc = a^r$$

$$a^r \cdot b^r + c^r - rba \cos A$$

$$\Rightarrow \cos A \sqrt{-1/r} \rightarrow A^r = 1\%$$



-10

$$S: \frac{1}{r} \times AB \times AC \times \frac{1\%}{r} = r$$

$$\Rightarrow (r - a \cos \alpha)(1 + r \cos \alpha) = r$$

$$r a \cos \alpha - 1 a \cos \alpha + a = 0 \rightarrow a \cos \alpha - 1 a \cos \alpha + a = 0$$

$$(a \cos \alpha - 1)(a \cos \alpha - a) = 0$$

$$a \cos \alpha = \frac{r}{1} = 1$$

$$a \cos \alpha = \frac{r}{1} = 1$$

$$\Rightarrow BC^r = r^r + 14 - r(r)(r)\left(\frac{\sqrt{r}}{r}\right) = \sqrt{r_0 - 1\sqrt{r}}$$