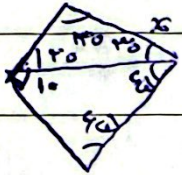


$$B+C=120 \rightarrow A=90 \Rightarrow \frac{r_0}{\sin A} = \frac{r_0 \sqrt{2}}{\sin B} \rightarrow \frac{\sqrt{2}}{r} = \sin B \Rightarrow B=45$$

$$C=45$$

$$110-140=40 \Rightarrow A_1=40 \quad \frac{r\sqrt{2}}{\sin A} = \frac{AC}{\sin 40} \Rightarrow AC=r\sqrt{2}$$

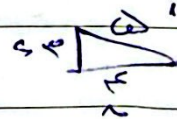


$$\frac{r\sqrt{2}}{\sin 40} = \frac{r_0}{\sin 40} \Rightarrow r=r_0$$

$$\frac{(b-r) \sin C}{\sin B} = c \rightarrow b^2 - r^2 = k \sin B = b \rightarrow b^2 - r^2 - b = 0$$

b = -1, x

$$199 = r_1^2 + r_0 - r (k \cos B) \Rightarrow \cos B = 0.1 \Rightarrow \sin B = 0.9$$



$$10 = \sqrt{r^2 + 18\sqrt{2} - 18\sqrt{2}} = r\sqrt{2} \rightarrow \frac{r\sqrt{2}}{\sin A} = \frac{k}{\sin C}$$

$$\sin C = \frac{\sqrt{2}}{r} \Rightarrow C=45 \quad 110-100=10$$

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

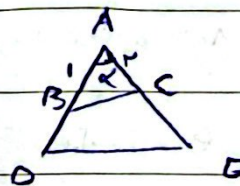
$$OD^2 = AD^2 + AE^2 - 2ADAE \cos \alpha$$

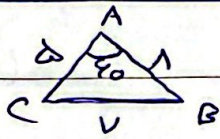
$$r = 19 \cos \alpha$$

$\frac{1}{r}$

$$DE^2 = 19 \cos^2 \alpha$$

$$DE = \pm \sqrt{19}$$





$$\sqrt{BC} = \sqrt{a+qr}$$

$$BC = a$$

(cell)

$$S = \frac{1}{r} \times a \times 1 \times \frac{\sqrt{r}}{r}$$

(1) (1)

$$\frac{(b+c)^r - a^r}{bc(\cos A + 1)} \Rightarrow \frac{b^r + rbc + c^r - b^r - c^r + rbc \cos A}{bc(\cos A + 1)} \quad (1)$$

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

$$\frac{a^r + b^r - c^r}{a+b-c} = a^r \rightarrow a^r + b^r - c^r = a^r + a^r b - a^r c \quad (9)$$

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

$$b^r + c + bc = a^r \rightarrow b^r + c^r + bc = b^r + c^r - rbc \cos A \rightarrow \cos A = -\frac{1}{r}$$

$$S = r \rightarrow \frac{(r - \cos \alpha)(1 + r \cos^2 \alpha)}{r} = r \quad (10)$$

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

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

$$19 + r - r \times r \times r \times \frac{\sqrt{r}}{r} = r_0 - 1 \sqrt{r}$$