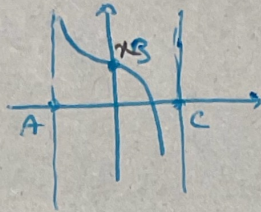


$$B | a \rightarrow \tan \frac{p}{f} = 1$$

$$y = \tan(-rx + \frac{p}{f})$$

$$S_{\triangle ABC} = ?$$



$$S = \frac{1 \times \frac{p}{f}}{r} = \frac{p}{f}$$

سوال (۱)

$$x^r - (\sin \alpha)x - \frac{1}{f} \cos^r \alpha = 0 \quad 1 + \tan^r \alpha = ?$$

سوال (۲)

$$\left(\frac{r}{r}\right)^r - \left(\frac{r}{r} \sin \alpha\right) - \frac{1}{f} \cos^r \alpha = 0 \Rightarrow \frac{f}{a} - \frac{r}{r} \sin \alpha - \frac{1}{f} \cos^r \alpha = 0$$

$$\frac{f}{a} = \frac{r}{r} \sin \alpha - \frac{1}{f} \cos^r \alpha \quad x = \frac{\sin \alpha \pm \sqrt{\sin^2 \alpha + \cos^2 \alpha}}{r} = \frac{\sin \alpha \pm 1}{r}$$

$$\frac{\sin \alpha \pm 1}{r} = \frac{r}{r} \begin{cases} \frac{\sin \alpha + 1}{r} = \frac{r}{r} \Rightarrow \sin \alpha = \frac{1}{r} \checkmark \\ \frac{\sin \alpha - 1}{r} = \frac{r}{r} \Rightarrow \sin \alpha = \frac{r}{r} \text{ د. د. ع. } \end{cases}$$

$$1 = \sin \alpha \Rightarrow \sin^2 \alpha + \cos^2 \alpha = 1 \Rightarrow \cos \alpha = \frac{\sqrt{1}}{r}$$

$$1 + \tan^r \alpha = 1 + \frac{\sin^r \alpha}{\cos^r \alpha} = 1 + \frac{\left(\frac{1}{r}\right)^r}{\left(\frac{\sqrt{1}}{r}\right)^r} = 1 + \left(\frac{\frac{1}{r}}{\frac{\sqrt{1}}{r}}\right)^r = 1 + \frac{1}{1} = \boxed{\frac{a}{1}}$$

$$\log(\sin \alpha) - \log(-\cos \alpha) = \log r \quad \sin \alpha - \cos \alpha = ?$$

سوال (۳)

$$\log a - \log b = \log\left(\frac{a}{b}\right) \Rightarrow \log\left(\frac{\sin \alpha}{-\cos \alpha}\right) = \log r \Rightarrow \frac{\sin \alpha}{-\cos \alpha} = r$$

$$\Rightarrow \frac{\sin \alpha}{\cos \alpha} = -r \Rightarrow \tan \alpha = -r$$

$$\sin^r \alpha + \cos^r \alpha = 1 \Rightarrow (-r \cos \alpha)^r + \cos^r \alpha = 1 \Rightarrow r \cos^r \alpha + \cos^r \alpha = 1 \Rightarrow \cos^r \alpha = \frac{1}{1+r}$$

$$\Rightarrow \cos \alpha = \sqrt{\frac{1}{1+r}} = \frac{1}{\sqrt{1+r}} \quad \sin \alpha = -\frac{r}{\sqrt{1+r}} \quad \left\{ \begin{aligned} \sin \alpha - \cos \alpha &= -\frac{r}{\sqrt{1+r}} - \frac{1}{\sqrt{1+r}} = -\frac{r+1}{\sqrt{1+r}} \\ &= -\sqrt{1+r} \end{aligned} \right.$$

$$\cos \alpha = -\frac{1}{\sqrt{1+r}} \Rightarrow \frac{r}{\sqrt{1+r}} + \frac{1}{\sqrt{1+r}} = \frac{r+1}{\sqrt{1+r}}$$

$$\sin^r \theta + \cos^r \theta = \frac{r}{a} \Rightarrow \sin^r \theta + \cos^r \theta = 1 \quad \begin{matrix} x = \sin^r \theta \\ y = \cos^r \theta \end{matrix}$$

سؤال (٤)

$$\cos^r \theta + \sin^r \theta = ?$$

$$\begin{cases} x^r + y = \frac{r}{a} \Rightarrow x^r + (1-x) = \frac{r}{a} \Rightarrow x^r - x = -\frac{1}{a} \\ x + y = 1 \Rightarrow y = 1-x \end{cases}$$

$$\cos^r \theta + \sin^r \theta = y^r + x = (1-x)^r + x = 1 + x^r - rx + x = 1 + x^r - x = \frac{r}{a}$$

$$\Rightarrow \cos^r \theta + \sin^r \theta = \frac{r}{a}$$

$$\frac{r \sin x + \sin x \cos^n x}{r(1 - \cos^n x)} < .$$

سؤال (٥)

$$\frac{\sin(r + \cos^n x)}{r \sin^n x} < . \Rightarrow \sin < .$$

$$\sin x \frac{\sin^n x}{\cos^n x} - \frac{1}{\cos^n x} > . \quad \text{نصف ٣}$$

$$\frac{\sin^n x - 1}{\cos^n x} > . \quad \frac{-\cos^r x}{\cos^n x} > . \Rightarrow \cos < .$$

$$\frac{r}{\sin x} + \frac{r}{\cos x} = 0 \Rightarrow \frac{r}{\sin x} = -\frac{r}{\cos x} \xrightarrow{x \sin x \cos^n x} r \cos^n x = -r \sin x$$

سؤال (٦)

$$\Rightarrow \frac{\cos^n x}{\sin x} = -\frac{r}{r} \Rightarrow \cot x = -\frac{r}{r} \Rightarrow \tan x = -\frac{r}{r} \Rightarrow -\frac{r}{r} - \frac{r}{r} = -\frac{1^r}{4}$$

$$\frac{\sqrt{1 + \sin \theta}}{\sin \theta + \sin 1} = ?$$

سؤال (٧)

$$\sin A + \sin B = r \sin \left(\frac{A+B}{r} \right) \cos \left(\frac{A-B}{r} \right) \quad \begin{matrix} A = \theta. \\ B = 1. \end{matrix} \Rightarrow \sin \theta + \sin 1 = r \cos r.$$

$$\underbrace{(1 - r \sin^2 \alpha)}_{(1)} \underbrace{(r \cos^2 \alpha - 1)}_{(2)} \underbrace{\left(\frac{1 - \tan^2 r}{1 + \tan^2 r} \right)}_{(3)}$$

سؤال ٩

$$(1) \quad 1 - r \sin^2 \alpha = \cos^2 \alpha$$

$$(2) \quad r \cos^2 \alpha - 1 = \cos^2 r$$

$$(3) \quad \frac{1 - \tan^2 r}{1 + \tan^2 r} = \cos^2 r$$

$$\left. \begin{array}{l} \cos^2 \alpha \times \cos^2 r \times \cos^2 r \\ \{ \\ r \cos^2 \alpha - 1 \end{array} \right\}$$

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

$$\Rightarrow \text{در هر دو طرف } \cos^2 \alpha \cdot (r \cos^2 \alpha - 1) (r (r \cos^2 \alpha - 1)^2 - 1)$$

$$\sin \alpha + r \cos \alpha = r$$

$$\Delta \cos^2 \alpha - 1 r \cos \alpha = ?$$

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

$$\Delta (r \cos \alpha - 1) - 1 r \cos \alpha = 1 \cdot \cos^2 \alpha - 1 r \cos \alpha - \Delta \quad \textcircled{I}$$

$$\Delta \sin \alpha + r \cos \alpha = r \Rightarrow \sin \alpha = r - r \cos \alpha \Rightarrow \sin^2 \alpha = (r - r \cos \alpha)^2$$

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

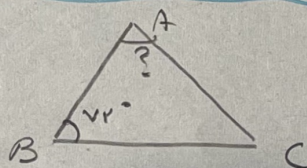
$$1 \cdot \cos^2 \alpha - 1 r \cos \alpha + r = 0 \quad \textcircled{II}$$

$$\textcircled{I}; \quad 1 \cdot \cos^2 \alpha - 1 r \cos \alpha - \Delta = (1 \cdot \cos^2 \alpha - 1 r \cos \alpha + r) - 1 = 0 - 1 = -1$$

$$\sin B \sin C = \cos \frac{A}{r}$$

$$B = \sqrt{r}$$

$$A = ?$$



$$\hat{A} + \hat{B} + \hat{C} = 1\pi$$

$$C = 1\pi - A - \sqrt{r} = 1\pi - A - A$$

سؤال ٩

$$\sin B \sin C = \sin \sqrt{r} \sin (1\pi - A) =$$

$$\sin \sqrt{r} (\sin 1\pi \cos A - \cos 1\pi \sin A) \Rightarrow \cos 1\pi = -\cos \sqrt{r} \\ \sin 1\pi = \sin \sqrt{r}$$

$$\Rightarrow \frac{1}{r} \left[\cos(A - \sqrt{r}) - \frac{\cos(1\pi - A)}{-\cos A} \right] = \cos \frac{A}{r}$$

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

$$\cos(A - \sqrt{r}) + \cos A = 1 + \cos A \Rightarrow \cos(A - \sqrt{r}) = 1$$

$$A - \sqrt{r} = 0 \quad (A = \sqrt{r})$$