مهرنیا ریاضی — دوازدهم دختر سه‌شنبه — ج

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$$\frac{9}{\sin 45} = \frac{AB}{\sin(\pi-\alpha)} \Rightarrow \frac{9}{\sin 45} = \frac{AB}{\sin\alpha} \rightarrow \sin\alpha = \frac{\sin 45\ AB}{9}$$

$$\frac{3}{\sin 30} = \frac{AC}{\sin\alpha} \qquad \sin\alpha = \frac{\sin 30 \cdot AC}{3} = \frac{\sin 45\ AB}{9}$$

$$AC = \sin 45\ AB \qquad \frac{AB}{AC} = \frac{1}{\frac{\sqrt{2}}{2}} = \frac{2}{\sqrt{2}} = \sqrt{2}$$

$$A = \frac{\pi}{6} \Rightarrow A\left|\begin{matrix}\frac{1}{2}\\ \frac{\sqrt{3}}{2}\end{matrix}\right. \qquad B = \frac{5\pi}{6} \rightarrow B\left|\begin{matrix}-\frac{\sqrt{3}}{2}\\ \frac{1}{2}\end{matrix}\right. \qquad C = \frac{3\pi}{2} \rightarrow C\left|\begin{matrix}0\\ -1\end{matrix}\right.$$

$$\frac{1}{2}\times\begin{vmatrix}\frac{1}{2} & -\frac{\sqrt{3}}{2} & 0\\ \frac{\sqrt{3}}{2} & \frac{1}{2} & -1\\ 1 & 1 & 1\end{vmatrix} = \frac{1}{4}+\frac{3}{4}+0-0+\frac{1}{2}+\frac{3}{4} = \frac{9}{4}\times\frac{1}{2} = \frac{9}{8}$$

$$AC = \sqrt{\frac{1}{4}+\left(\frac{\sqrt{3}}{2}+1\right)^2} =$$

$$S_{ABC} = \frac{1}{2}AB \cdot AC \cdot \sin 30 = \frac{1}{2}\times\frac{1}{2}\times\log_2^{27}\times\log_3^{16} = \frac{1}{2}\times\frac{1}{2}\times 3\times 4 = 3$$

$x = \cos\alpha$

$$2\cos^4\alpha - \cos^2\alpha - \sin^2\alpha(2\sin^2\alpha - 1)$$

$$2\cos^4\alpha - \cos^2\alpha - \sin^2\alpha(2\sin^2\alpha - 1)$$

$$\cos^2\alpha(2\cos^2\alpha - 1) - \sin^2\alpha(2\sin^2\alpha - 1) = \sin x + \cos^2 x$$