پارسا صلحی — کلید ش. ۱۵ — یازدهم سری A

۱- $\tan\frac{x}{4}=1 \Rightarrow x=\pi \Rightarrow T=\frac{x}{1-21}=\frac{x}{2}$

Al $\quad S=\frac{\frac{x}{2}+1}{2}=\frac{x}{4}$

۲- $\frac{4}{a}-\frac{2}{3}\sin\alpha \Rightarrow x=\frac{2}{3} \Rightarrow x^2-\sin x-\frac{1}{4}\cos^2\alpha=0$

$\frac{1}{4}(\sin^2\alpha-1)=0 \Rightarrow \frac{4}{9}\sin^2\alpha-\frac{4}{3}\sin\alpha+\frac{7}{36}=0$

$\Rightarrow 16\sin^2\alpha-48\sin\alpha+7=0 \Rightarrow \sin\alpha=\frac{48\pm\sqrt{1856}}{32}$ — $\frac{7}{4}$ غ ق ، $\frac{1}{4}$ ق ق

$\Rightarrow$ شد ابتدا $\left(\frac{1}{3}\right)^2=\frac{1}{9} \Rightarrow \cos^2\alpha$

$\frac{1}{\frac{8}{9}}=\frac{9}{8} \quad 1+\tan^2\alpha=\frac{1}{\cos^2\alpha} \Leftarrow \frac{8}{9}$

۳- $\log^{\sin\alpha}-\log^{-\cos\alpha}=\log^{3} \Rightarrow \frac{\sin}{-\cos}=3 \Rightarrow \sin\alpha=-3\cos\alpha$

$\sin^2\alpha+\cos^2\alpha=1 \Rightarrow 10\cos^2\alpha=1 \Rightarrow \cos^2\alpha=\frac{1}{10}$ — $\cos\alpha=-\frac{1}{\sqrt{10}}$ ، $\cos\alpha=+\frac{1}{\sqrt{10}}$

$\frac{1}{\sqrt{10}} \Rightarrow$ غ ق $\Rightarrow$ $\log^{x}$ در $x=0$

$\sin\alpha-\cos\alpha=\frac{3}{\sqrt{10}}+\frac{1}{\sqrt{10}}=\frac{4}{\sqrt{10}}$

$\sin^4\alpha + \cos^2\alpha = \frac{4}{5} \Rightarrow (1-\cos^2\alpha)^2 + \cos^2\alpha = \frac{4}{5}$ -4

$\Rightarrow 1-2\cos^2\alpha+\cos^4\alpha+\cos^2\alpha = \frac{4}{5} \Rightarrow \underbrace{1-\cos^2\alpha}_{\sin^2\alpha}+\cos^4\alpha = \frac{4}{5}$

$\Rightarrow \sin^2\alpha+\cos^4\alpha = \frac{4}{5}$

-5

$\frac{2}{\sin\alpha}+\frac{3}{\cos\alpha}=0 \Rightarrow \frac{2\cos\alpha+3\sin\alpha}{\sin\alpha\cos\alpha}=0$ -6

$\Rightarrow 2\cos\alpha+3\sin\alpha=0 \Rightarrow \cos\alpha=-\frac{3\sin\alpha}{2}$

$\tan\alpha+\cot\alpha = \frac{\sin\alpha}{\cos\alpha}+\frac{\cos\alpha}{\sin\alpha} = \frac{\cos^2\alpha+\sin^2\alpha}{\sin\alpha\cos\alpha} = \frac{\sin\alpha}{-\frac{3}{2}\sin\alpha}+\frac{-\frac{3}{2}\sin\alpha}{\sin\alpha}$

$= -\frac{2}{3}-\frac{3}{2} = -\frac{13}{6}$

$\frac{\sqrt{1+\sin 50}}{\sin 50+\sin 10} \Rightarrow$ $1+\sin 50 = \sin 90+\sin 50 = 2\sin(70)$ -7

$\cos(20) = 2\cos^2(20)\cos^2 20) = 2\cos^2 20$

$\sin 50+\sin 10 = \underbrace{\cancel{2\sin 30}}_{1}\cos 20 = \cos 20 \Rightarrow \frac{\sqrt{2}\cos 20}{\cos 20}$

$=\sqrt{2}$

$1-2\sin^2 5 = 1-\sin^2 5 - \sin^2 5 \Rightarrow \cos^2 5 - \sin^2 5 = \cos 10$ — 8

$2\cos^2 10 - 1 = -\sin^2 10 + \cos^2 10 = \cos 20$

$\dfrac{1-\tan^2 20}{1+\tan^2 20} = \cos 40 \qquad \cos 10 \times \cos 20 \times \cos 40 \times \dfrac{\sin 10}{\sin 10}$

$\cancel{\tfrac{1}{2}\sin 20}\ \cancel{\tfrac{1}{2}\sin 40} = \tfrac{1}{8}\sin 80$

$= \dfrac{\cancel{\sin 10\cos 10} \times \cos 20 \times \cancel{\cos 40}}{\sin 10} = \dfrac{1}{8}\dfrac{\overset{\cos 10}{\cancel{\sin 80}}}{\sin 10} = \dfrac{1}{8}\cot 10$

$\sin\alpha + 3\cos\alpha = 2 \Rightarrow \sin\alpha = 2 - 3\cos\alpha$ — 9

$1 = \sin^2 + \cos^2\alpha \Rightarrow (2-3\cos\alpha)^2 + \cos^2\alpha = 1 \Rightarrow 10\cos^2\alpha - 12\cos\alpha = -3$

[illegible] : $\cos^2\alpha = \dfrac{1+\cos 2\alpha}{2} \Rightarrow \cos 2\alpha = 2\cos^2\alpha - 1$

$\Rightarrow 5\cos 2\alpha = 10\cos^2\alpha - 5 \Rightarrow 10\cos^2\alpha - 12\cos\alpha - 5$

$= -8$

$\sin\alpha \cdot \sin\beta = \frac{1}{2}(\cos(\alpha-\beta) - \cos(\alpha+\beta))$ — 6

$\Rightarrow \sin B \cdot \sin C = \frac{1}{2}(\cos(B-C) - \cos(B+C))$

$\cos\alpha \cos\beta = \frac{1}{2}(\cos(\alpha+\beta) + \cos(\alpha-\beta)) = \cos\frac{\alpha}{2} \times \cos\frac{a}{2}$

P4PCO

$= \frac{1}{2}(\cos A - \cos 90)$, $A + B + C = 180 \Rightarrow B = 180 - (A + C)$

$\Rightarrow B + C = 180 - A$

$\Rightarrow \frac{1}{2}[\cos(180 - (2C + A)) - \cos(180 - A)] = \frac{1}{2}(-\cos 2C + A + \cos A)$

$\frac{1}{2}\cos A + \frac{1}{2} = -\frac{1}{2}\cos 2C + A + \frac{1}{2}\cos A \Rightarrow \cos 2C + A = -1$

$\Rightarrow 2C + A = 180 \Rightarrow C = B = 72 \Rightarrow A = 180 - (72 + 72) = 36$