

$$14 - 24 \sin \alpha - 9(1 - \sin^2 \alpha) = 0$$

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اردیبهشت
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$$14 - 24 \sin \alpha - 9 + 9 \sin^2 \alpha = 0$$

$$9 \sin^2 \alpha - 24 \sin \alpha + 5 = 0$$

$$\sin \alpha = \frac{4}{3}$$

$$\sin \alpha = \frac{1}{3}$$

(مقدار سینوس)

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$$x^2 - (\sin \alpha)x - \frac{1}{8} \cos^2 \alpha = 0$$

$$\text{if } x = \frac{1}{8} \Rightarrow \frac{1}{8} - \frac{1}{8} \sin \alpha - \frac{1}{8} \cos^2 \alpha = 0 \Rightarrow$$

$$\frac{1}{8} (1 - \sin \alpha) = \frac{1}{8} \cos^2 \alpha \quad \cos^2 \alpha = 1 - \sin^2 \alpha$$

$$\frac{1}{8} = \frac{1 - \sin^2 \alpha}{1 - \sin \alpha} = \frac{(1 + \sin \alpha)(1 - \sin \alpha)}{(1 - \sin \alpha)} = 1 + \sin \alpha$$

$$\frac{1}{8} = 1 + \sin \alpha \Rightarrow \sin \alpha = \frac{1}{8}$$

$$1 + \cot^2 \alpha = \frac{1}{\sin^2 \alpha} \quad 1 + \tan^2 \alpha = \frac{1}{\cos^2 \alpha} \Rightarrow$$

$$* \frac{11}{11} - \frac{48}{11} = \frac{10}{11} \Rightarrow 1 + \tan^2 \alpha = \frac{11}{10}$$

$$\log(\sin \alpha) - \log(-\cos \alpha) = \log 3$$

$$\sin \alpha - \cos \alpha = ?$$

$$\log(-\tan \alpha) = \log 3 \Rightarrow -\tan \alpha = 3 \Rightarrow \tan \alpha = -3$$

$$\sin \alpha > 0$$

$$\cos \alpha > 0 \Rightarrow \cos \alpha < 0$$

مقدار سینوس

$$1 + \tan^2 \alpha = \frac{1}{\cos^2 \alpha} \Rightarrow 1 + 9 = \frac{1}{\cos^2 \alpha} \Rightarrow \frac{1}{\cos^2 \alpha} = 10 \Rightarrow \cos^2 \alpha = \frac{1}{10}$$

$$\Rightarrow \cos \alpha = \frac{1}{\sqrt{10}} = \frac{\sqrt{10}}{10} \quad \sin^2 \alpha = 1 - \frac{1}{10} = \frac{9}{10} \Rightarrow \sin \alpha = \frac{3\sqrt{10}}{10}$$

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$$\Rightarrow \sin \alpha - \cos \alpha = \frac{3\sqrt{10}}{10} - \left(-\frac{\sqrt{10}}{10}\right) = \frac{4\sqrt{10}}{10} = \frac{2\sqrt{10}}{5}$$

$$\sin^2 \theta + \cos^2 \theta = \frac{r}{\delta}$$

$$(\sin^2 \theta)^2 + \cos^2 \theta = \frac{r}{\delta}$$

$$(1 - \cos^2 \theta)^2 + \cos^2 \theta = \frac{r}{\delta}$$

$$\cos^2 \theta \sin^2 \theta + 1 - \sin^2 \theta = \frac{r}{\delta} \Rightarrow x^2 - x + \frac{1}{\delta} = 0$$

$$\cos^2 \theta - \cos^2 \theta = -\frac{1}{\delta}$$

$$\Rightarrow \Delta = 1 - 4\left(\frac{1}{\delta}\right) = \frac{1}{\delta} \Rightarrow \cos \theta = \frac{1 \pm \sqrt{\frac{1}{\delta}}}{2} = \sin^2 \theta$$

$$\cos^2 \theta - (1 - \sin^2 \theta) = -\frac{1}{\delta}$$

$$\cos^2 \theta + 1 - \cos^2 \theta = \frac{r}{\delta} \Rightarrow \cos^2 \theta = 1 + \frac{r}{\delta}$$

$$\cos^2 \theta + \sin^2 \theta = \frac{r}{\delta}$$

$$\Rightarrow \cos^2 \theta \Rightarrow 1 + \frac{1}{\delta} + 2\sqrt{\frac{1}{\delta}}$$

$$\downarrow$$

$$1 + \frac{1}{\delta} - 2\sqrt{\frac{1}{\delta}}$$

$$\Rightarrow 1 + \frac{1}{\delta} \pm 2\sqrt{\frac{1}{\delta}} + 1 \pm \sqrt{\frac{1}{\delta}}$$

$$\frac{r}{\sin x} + \frac{r}{\cos x} = 0 \Rightarrow \frac{r \cos x + r \sin x}{\cos x \sin x} = 0$$

$$\Rightarrow r \cos x + r \sin x = 0 \Rightarrow r \cos x = -r \sin x \Rightarrow \tan x = -\frac{r}{r}$$

$$\cot x + \tan x = -\frac{r}{r} - \frac{r}{r} = \frac{-r - r}{r} = \frac{-2r}{r}$$

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