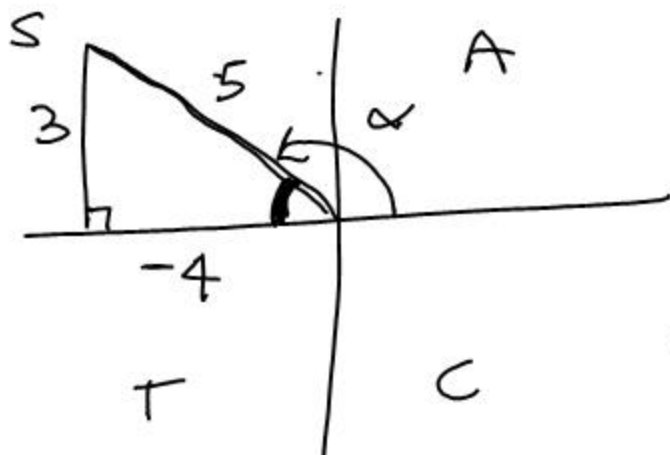


① $\tan \alpha = -\frac{3}{4}$, $0 < \alpha < \pi$
 quad I or II

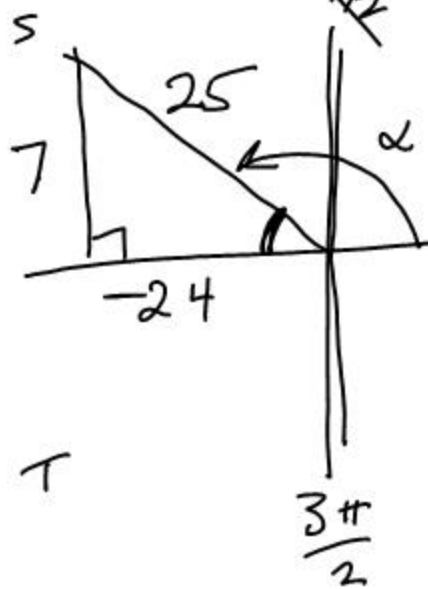


$$\sin \alpha = \frac{3}{5}$$

$$\cos \alpha = \frac{-4}{5}$$

$$\sec \alpha = \frac{-5}{4}$$

④ $\sin \alpha = \frac{7}{25}$, $\frac{\pi}{2} < \alpha < \frac{3\pi}{2}$
 quad. II or III



$$\cos \alpha = \frac{-24}{25}$$

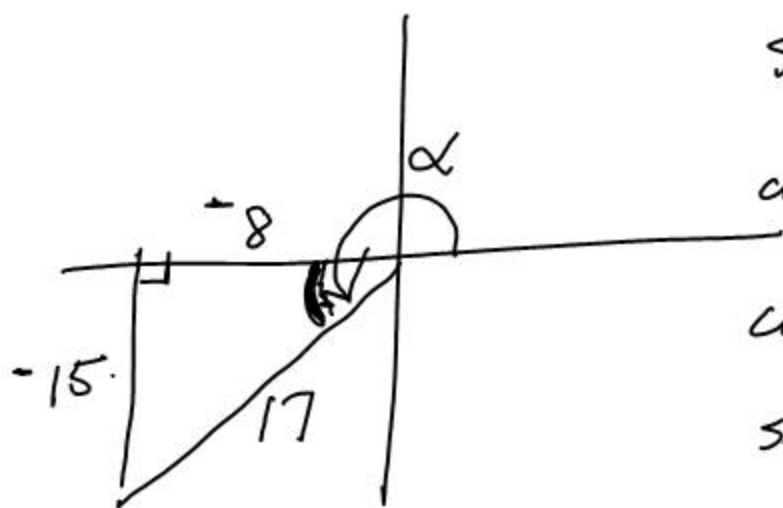
$$\tan \alpha = \frac{-7}{24}$$

$$\sec \alpha = \frac{-25}{24}$$

⑦ $\sin \theta > 0$, $\cos \theta < 0$
 I, II | II, III

⑩ $\cos \theta > 0$, $\sin \theta > 0$
 I, IV

$$(10) \quad \tan \alpha = \frac{15}{8}, \quad \sin \alpha < 0$$



$$\sin \alpha = \frac{-15}{17}$$

$$\cos \alpha = \frac{-8}{17}$$

$$\cot \alpha = \frac{8}{15}$$

$$\sec \alpha = \frac{-17}{8}$$

$$\csc \alpha = \frac{-17}{15}$$

$$\#34 \quad 2 \sin^2 x + 3 \sin x + 1 = 0$$

$$\text{Let } y = \sin x$$

$$2y^2 + 3y + 1 = 0$$

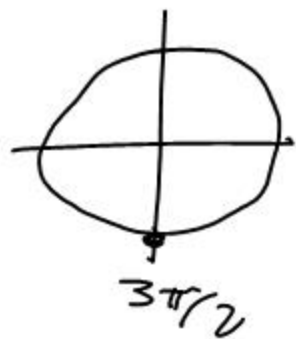
$$(2y + 1)(y + 1) = 0$$

$$2y + 1 = 0 \quad \text{or} \quad y + 1 = 0$$

$$\sin x = -\frac{1}{2}$$

$$\sin x = -1$$

$$x = \frac{7\pi}{6}, \frac{11\pi}{6}, \frac{3\pi}{2}$$



$$\textcircled{*23} (\tan 3x)(\tan x - 1) = 0$$

$$\swarrow \quad \searrow$$

$$\tan 3x = 0 \quad \text{or} \quad \underline{\tan x - 1 = 0}$$

$$3x = 0, \pi, 2\pi, 3\pi, 4\pi, 5\pi$$

$$\tan x = 1$$

$$x = \frac{\pi}{4}, \frac{5\pi}{4}$$



$$x = 0, \frac{\pi}{3}, \frac{2\pi}{3}, \pi, \frac{4\pi}{3}, \frac{5\pi}{3}$$

$$\textcircled{*27} 3\tan^3 x = \tan x$$

$$3\tan^3 x - \tan x = 0$$

$$\underline{\tan x} (3\tan^2 x - 1) = 0$$



$$\tan 0 = \frac{\sin 0}{\cos 0} = \frac{0}{1}$$

$$\downarrow$$

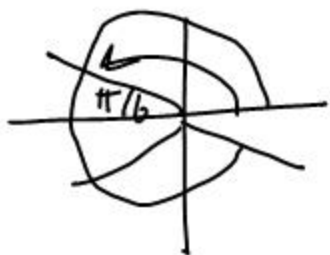
$$\tan x = 0 \quad \text{or} \quad 3\tan^2 x - 1 = 0$$

$$x = 0, \pi$$

$$3\tan^2 x = 1$$

$$\tan^2 x = \frac{1}{3}$$

$$\tan x = \pm \frac{1}{\sqrt{3}}$$



$$x = \frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$$

$$\#35 \quad 2 \sec^2 x + \tan^2 x - 3 = 0$$

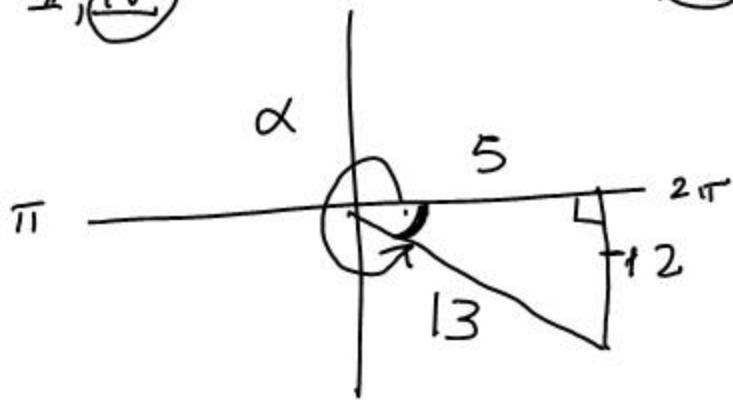
identity:

$$1 + \tan^2 x = \sec^2 x$$

$$2(1 + \tan^2 x) + \tan^2 x - 3 = 0$$

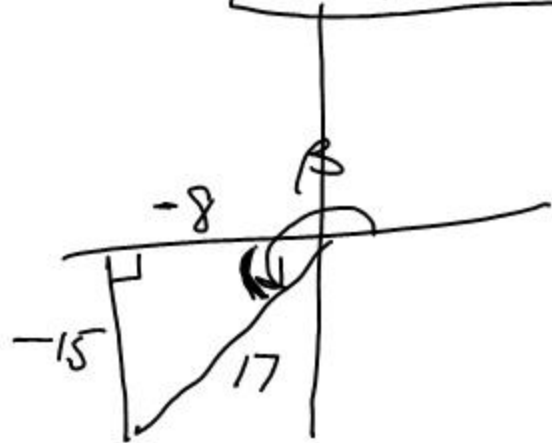
$$\tan \alpha = -\frac{12}{5}, \quad \pi < \alpha < 2\pi$$

I, (IV)



$$\sin \beta = -\frac{15}{17}$$

$$\frac{\pi}{2} < \beta < \frac{3\pi}{2}$$



$$\textcircled{C} \quad \sin 2\alpha = 2 \sin \alpha \cos \alpha \leftarrow \begin{array}{l} \text{double} \\ \text{angle} \\ \text{identity} \\ \text{for sine} \end{array}$$
$$= 2 \left(-\frac{12}{13} \right) \left(\frac{5}{13} \right) = -\frac{120}{169}$$

$$\begin{aligned} \textcircled{e} \quad \sin \frac{\beta}{2} &= \sqrt{\frac{1}{2} - \frac{1}{2} \cos \beta} && \frac{1}{2}\text{-angle} \\ &&& \text{formula} \\ &= \sqrt{\frac{1}{2} - \frac{1}{2} \left(\frac{-8}{17} \right)} \\ &= \sqrt{\frac{17 + 8}{34}} = \sqrt{\frac{25}{34}} = \frac{5}{\sqrt{34}} \end{aligned}$$
