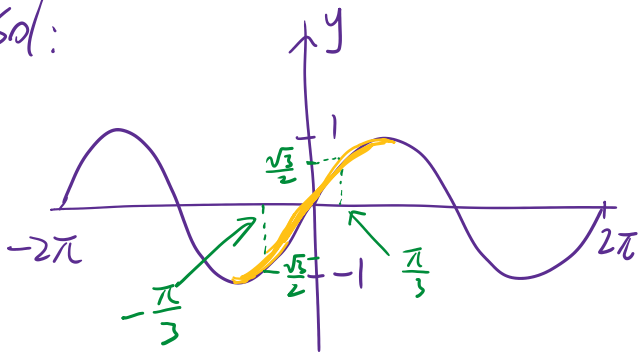


$$13. \sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)$$

Sol:



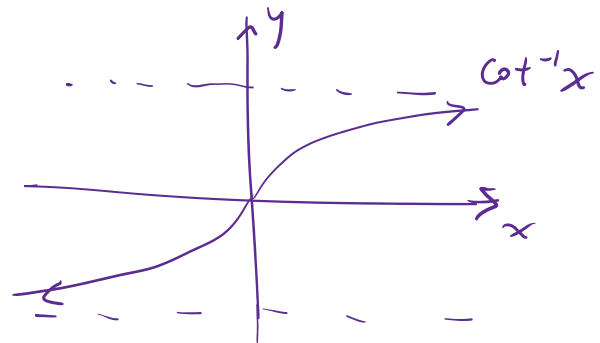
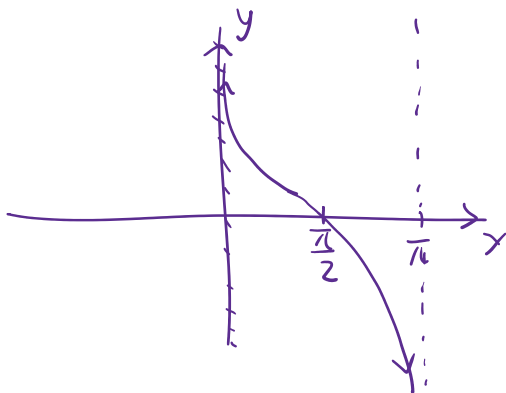
$$\sin ? = -\frac{\sqrt{3}}{2} \quad \leftarrow \text{may skip}$$

$$\sin \theta = -\frac{\sqrt{3}}{2}$$

$$\theta = \boxed{-60^\circ} \text{ or } \boxed{-\frac{\pi}{3}}$$

$$14. \cot^{-1}\left(-\frac{\sqrt{3}}{3}\right)$$

Sol:



$$\cot ? = -\frac{\sqrt{3}}{3}$$

$$\cot \theta = -\frac{\sqrt{3}}{3}$$

↑

← cofunction

$$\tan 30^\circ = \cot 60^\circ = \frac{\sqrt{3}}{3}$$

$$\cot \theta = -\frac{\sqrt{3}}{3}$$

$$\theta = \boxed{-60^\circ} \text{ or } \boxed{-\frac{\pi}{3}}$$



$$\text{or } \cot \theta = -\frac{\sqrt{3}}{3}$$

$$\cot \theta = -\frac{\sqrt{3}}{3}$$

$$\frac{1}{\tan \theta} = -\frac{\sqrt{3}}{3}$$

$$3 = \tan \theta \cdot (-\sqrt{3})$$

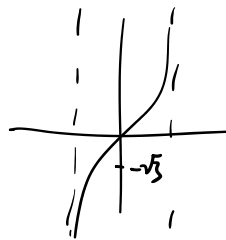
$$\frac{3}{-\sqrt{3}} = \frac{\tan \theta \cdot (-\sqrt{3})}{-\sqrt{3}}$$

$$\frac{\sqrt{3}}{\sqrt{3}} \cdot -\frac{3}{\sqrt{3}} = \tan \theta$$

$$-\frac{\sqrt{3} \cdot 3}{3} = \tan \theta$$

$$-\sqrt{3} = \tan \theta$$

$$\boxed{-\frac{\pi}{3}} \text{ or } \boxed{-60^\circ} = \theta$$



$$15. \csc^{-1}(-\sqrt{2})$$

$$\text{Sol: } \csc \theta = -\sqrt{2}$$

$$\csc \theta = -\sqrt{2}$$

$$\frac{1}{\sin \theta} = -\frac{\sqrt{2}}{1}$$

$$\sin \theta = \frac{-1}{\sqrt{2}}$$

$$\frac{1}{-\sqrt{2}} = \frac{\sin \theta \cdot -\sqrt{2}}{-\sqrt{2}}$$

$$\frac{\sqrt{2}}{\sqrt{2}} \cdot -\frac{1}{\sqrt{2}} = \sin \theta$$

$$-\frac{\sqrt{2}}{2} = \sin \theta$$

$$\boxed{-\frac{\pi}{4}} \text{ or } \boxed{-45^\circ} = \theta$$

$$16. \sin^{-1}\left(\cot \frac{\pi}{4}\right)$$

$$\text{Sol: } \cot \frac{\pi}{4} = \frac{1}{\tan \frac{\pi}{4}}$$

\Rightarrow

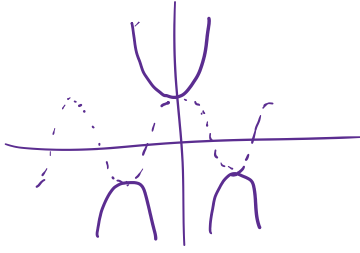
$$= \sin^{-1}\left(\frac{1}{\tan \frac{\pi}{4}}\right)$$

$$= \sin^{-1}\left(\frac{1}{1}\right)$$

$$= \sin^{-1} 1$$

$$= \boxed{\frac{\pi}{2}}$$

\leftarrow didn't specify from ... , so it's a unique inverse



$$P: \quad \frac{0}{2} \leq \frac{2x}{2} \leq \frac{2\pi}{2}$$

$$0 \leq x \leq \pi$$

