

{ p.131
#1-7 }

$$1. a) 1 - \sin^2 x \\ = \cos^2 x$$

$$c) (1 - \cos^2) \cot^2 x \\ = \sin^2 x \cdot \cot^2 x \\ = \sin^2 x \cdot \frac{\cos^2 x}{\sin^2 x} \\ = \cos^2 x$$

$$1. e) \csc^2 x - \cot^2 x \\ = 1$$

$$g) \cot^2 x \sec x \sin x \\ = \frac{\cos^2 x}{\sin^2 x} \cdot \frac{1}{\cos x} \cdot \sin x \\ = \frac{\cos x}{\sin x} = \cot x$$

$$\cot x = \frac{1}{\tan x} = \frac{1}{\frac{\sin x}{\cos x}}$$

$$\cot x = \frac{\cos x}{\sin x}$$

$$h) \sin^2 x \sec^2 x \\ = \sin^2 x \cdot \frac{1}{\cos^2 x} \\ = \tan^2 x$$

$$2. \cos x = \frac{1}{8} \quad x: [0, \frac{\pi}{2}]$$

$$\begin{aligned} a) \sin x &= \frac{\sqrt{63}}{8} \\ &= \frac{3\sqrt{7}}{8} \end{aligned}$$

$$\sin^2 x + \cos^2 x = 1$$

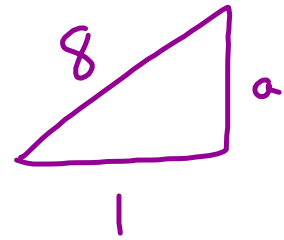
$$\sin^2 x + \left(\frac{1}{8}\right)^2 = 1$$

$$\sin^2 x = 1 - \frac{1}{64}$$

$$\sin^2 x = \frac{63}{64}$$

$$\sin x = \pm \sqrt{\frac{63}{64}}$$

$$b) \tan x = \frac{\frac{3\sqrt{7}}{8}}{\frac{1}{8}} = 3\sqrt{7}$$



$$3. \sin x = -\frac{13}{40} \quad x \in \left[\frac{3\pi}{2}, 2\pi \right]$$

$$a) \cos x = ?$$

$$\cos^2 x + \left(-\frac{13}{40} \right)^2 = 1$$

$$\cos^2 x = 1 - \frac{169}{1600}$$

$$\cos^2 x = \frac{1431}{1600}$$

$$\cos x = \pm \sqrt{\frac{1431}{1600}}$$

4th quad cos +

$$\cos x = \frac{3\sqrt{159}}{40}$$

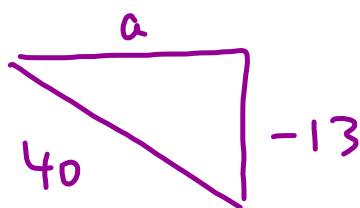
$$3. b) \sin x = \frac{-13}{40}$$

$$\sec x = \frac{\text{hyp}}{\text{adj}}$$

$$= \frac{40}{3\sqrt{159}}$$

$$= \frac{40\sqrt{159}}{3(159)}$$

$$= \frac{40\sqrt{159}}{477}$$



$$40^2 = (-13)^2 + a^2$$

$$1600 = 169 + a^2$$

$$1431 = a^2$$

$$\pm \sqrt{1431} = a$$

$$+ 3\sqrt{159} = a$$