

Append. D

# 47.

$$\sec y - \cos y = \tan y \sin y$$

$$\cos y \left( \frac{1}{\cos y} - \cos y \right) = \left( \frac{\sin y}{\cos y} \cdot \sin y \right) \cos y$$

$$1 - \cos^2 y = \sin^2 y$$
$$1 = \cos^2 y + \sin^2 y$$

# 59

$$\sin(x+y)$$

$$\text{if } \sin x = \frac{1}{3}$$

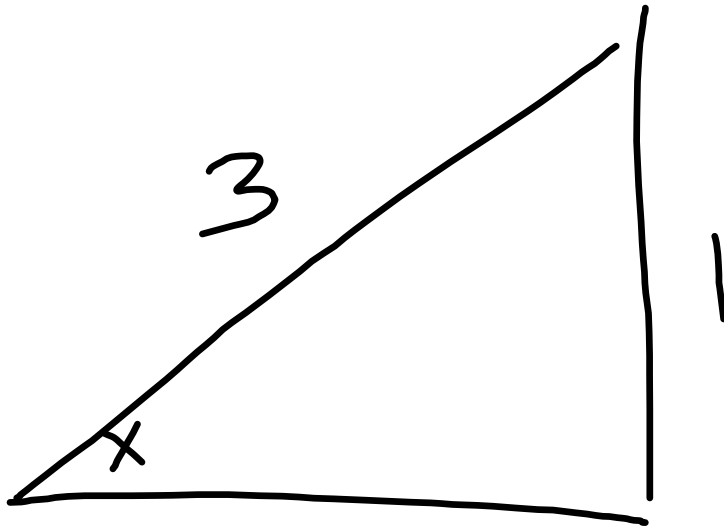
$$\sec y = \frac{5}{4}$$

$$\cos y = \frac{4}{5}$$

$$\sin(x+y) = \overset{\frac{1}{3}}{\sin x} \overset{\frac{4}{5}}{\cos y} + \overset{\frac{2\sqrt{2}}{3}}{\cos x} \overset{\frac{3}{5}}{\sin y}$$

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

$$\cos x = \frac{2\sqrt{2}}{3}$$



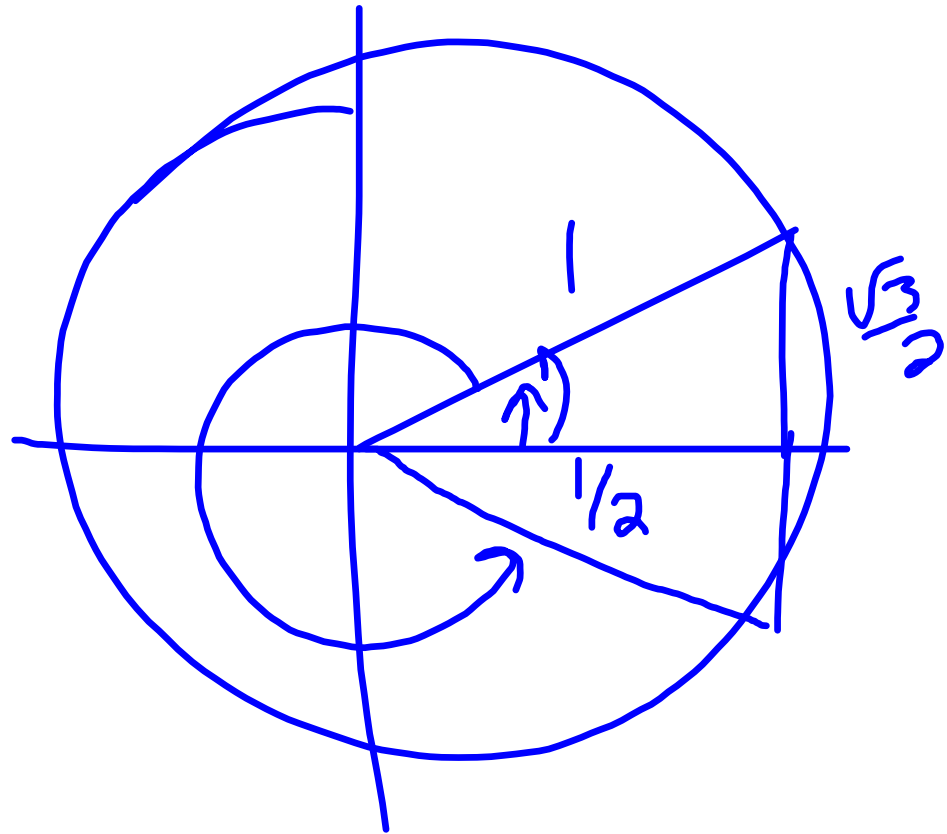
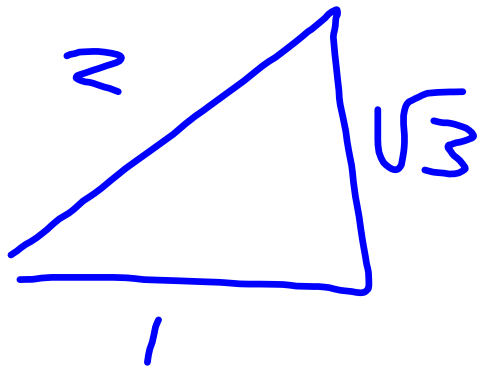
$$\begin{aligned}\sqrt{3^2 - 1^2} &= \sqrt{8} \\ &= 2\sqrt{2}\end{aligned}$$

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$$2 \cos x - 1 = 0$$

$$2 \cos x = 1$$

$$\cos x = \frac{1}{2}$$



Q9

Given

$$\sin 2x = \cos x$$

$$2 \sin x \cos x = \cos x$$

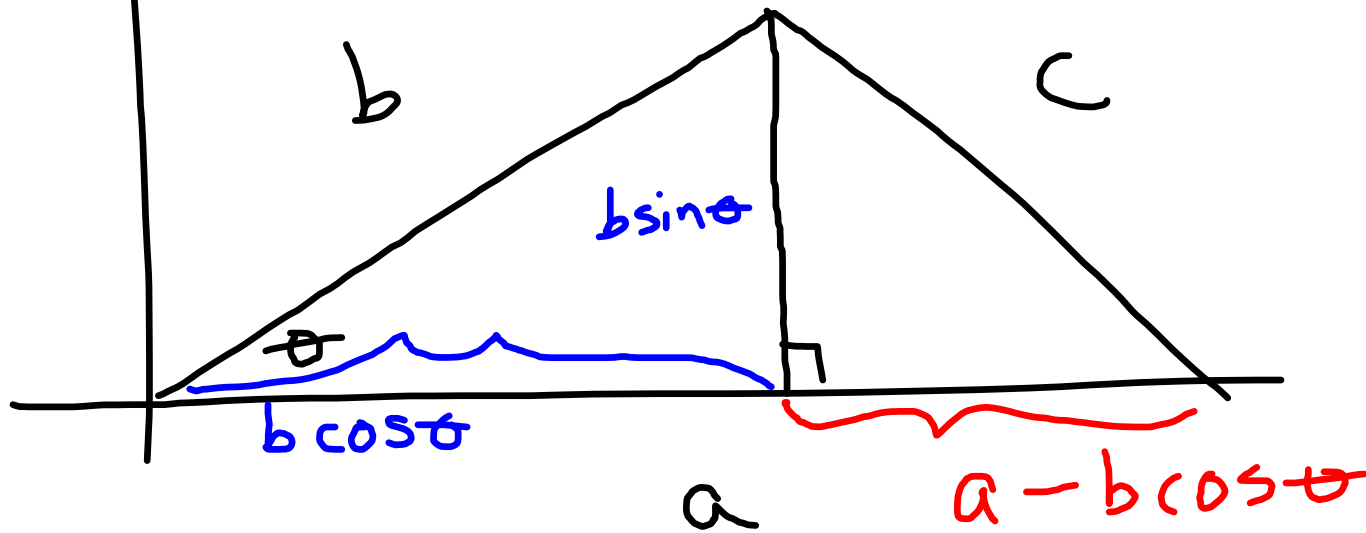
$$2 \sin x \cos x - \cos x = 0$$

$$\cos x (2 \sin x - 1) = 0$$

either  $\cos x = 0$

or  $2 \sin x - 1 = 0 \Rightarrow \sin x = \frac{1}{2}$

$$c^2 = (b \sin \theta)^2 + (a - b \cos \theta)^2$$



$$c^2 = (b \sin \theta)^2 + (a - b \cos \theta)^2$$

$$c^2 = b^2 \sin^2 \theta + a^2 - 2ab \cos \theta + b^2 \cos^2 \theta$$

$$c^2 = a^2 - 2ab \cos \theta + b^2 (\sin^2 \theta + \cos^2 \theta)$$

$$c^2 = a^2 + b^2 - 2ab \cos \theta$$

sweet!

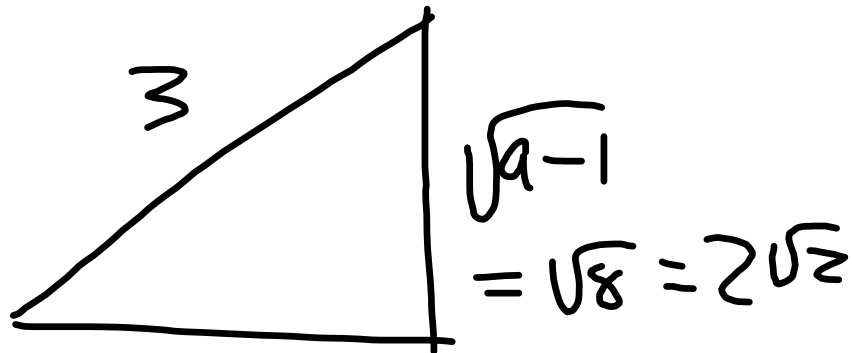
29.

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

$$0 \leq \theta \leq \frac{\pi}{2}$$

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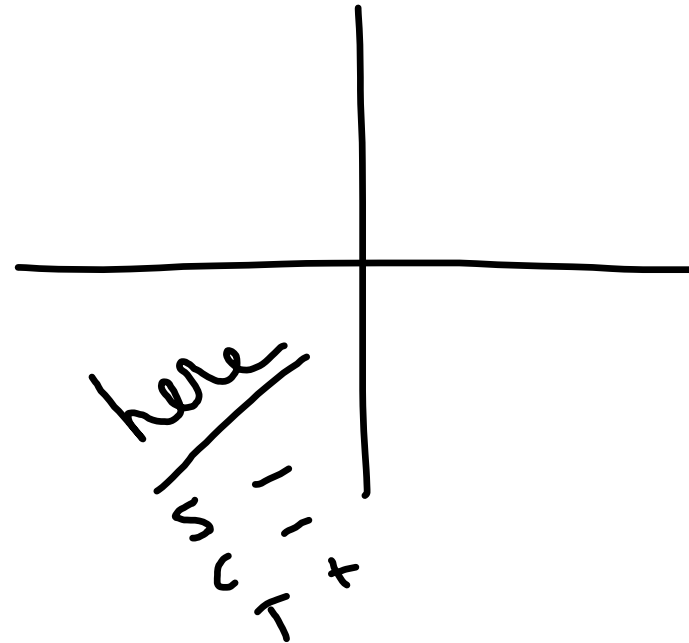
$$\cos X = -\frac{1}{3}$$



$$\sec X = -\frac{3}{1}$$

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

$$\csc X = -\frac{3}{2\sqrt{2}}$$



$$\tan X = \frac{2\sqrt{2}}{1}$$

$$\cot = \frac{1}{2\sqrt{2}}$$