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

$$x = 60°, 120°$$

$$\tan x = 1$$

$$x = 45°, 225°$$

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

$$x = 120°, 300°$$

$$\cos x = -1$$

$$x = 180°$$

Principal values (degrees) ✗	✗ $0° \le x < 360°$
$0 \le x < 2\pi$	for all real values of x (radians)

principal values

Solve $\sin x \cos x - \dfrac{1}{2} \cos x = 0$

sin/tan

$-90 \le x \le 90$

cos

$0 \le x \le 180$

$$\cos x \left(\sin x - \tfrac{1}{2} \right) = 0$$

$\cos x = 0$ $\sin x - \tfrac{1}{2} = 0$

$\boxed{x = 90°}$ $\sin x = \tfrac{1}{2}$

$\boxed{x = 30°}$

$$0 \le x < 360° \quad \Longleftarrow$$

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

$\begin{aligned} \cos^2 x - \cos x + 1 &= 1 - \cos^2 x \\ +\cos^2 x \qquad\qquad -1 &\quad -1 + \cos^2 x \end{aligned}$

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

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

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

$\boxed{x = 90°, 270°}$ $\cos x = \tfrac{1}{2}$

$\boxed{x = 60°, 300°}$

$$x = 60°, 90°, 270°, 300°$$

$$0 \leq x < 360°$$

Solve $2 \sec^2 x - \tan^4 x = -1$

$$2(\tan^2 x + 1) - \tan^4 x = -1$$

$$2\tan^2 x + 2 - \tan^4 x = -1$$
$$\quad +1 \qquad\qquad\qquad +1$$

$$\frac{-\tan^4 x + 2\tan^2 x + 3 = 0}{-1}$$

$$\tan^4 x - 2\tan^2 x - 3 = 0$$

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

$$\tan^2 x + 1 = 0 \qquad\qquad \tan^2 x - 3 = 0$$
$$\cancel{\tan^2 x = -1} \qquad\qquad \tan^2 x = 3$$
$$\qquad\qquad\qquad\qquad \tan x = \pm\sqrt{3}$$

$$\boxed{x = 60°, 240°, 120°, 300°}$$

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7. $\sin x \cot x = \dfrac{\sqrt{3}}{2}$ $\qquad\qquad 0 \leq x < 360°$

$$\cancel{\sin x} \, \frac{\cos x}{\cancel{\sin x}} = \frac{\sqrt{3}}{2}$$

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

$$\boxed{x = 30°, 330°}$$

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