

## Practice Quiz 4

① Find all general solutions

$$\cos 2\theta = \cos \theta$$

② Graph  $y = -3 + 2 \tan(4x + 2\pi)$

③ Find the smallest positive asymptote for  $y = -5 \sec\left(6x + \frac{\pi}{4}\right) + 4$

④ If  $\cos a < 0$  and  $\tan a = -\frac{24}{7}$  and  $\cot b > 0$  and  $\sec b = \frac{\sqrt{34}}{3}$

Find  $\cos(a + b)$



# Practice Quiz 4 - Answers

①  $\cos 2\theta = \cos \theta$

$$\cos^2 - \sin^2 = \cos$$

$$\cos^2 - (1 - \cos^2) = \cos$$

$$\cos^2 - 1 + \cos^2 - \cos = 0$$

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

$$(2\cos\theta + 1)(\cos\theta - 1) = 0$$

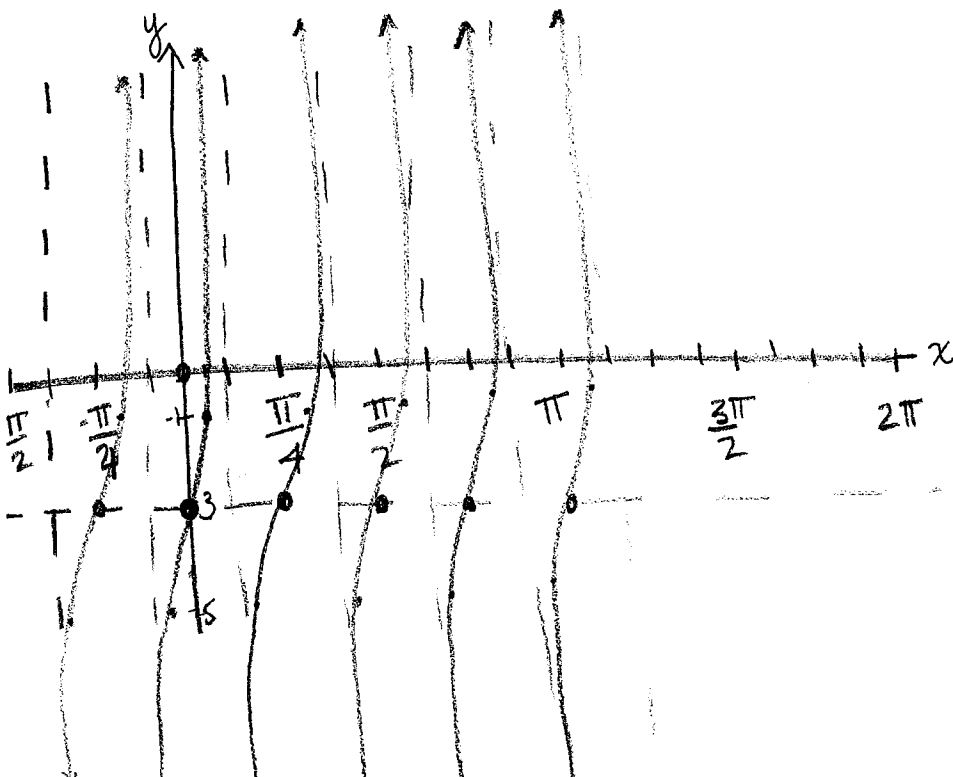
$$\cos\theta = -\frac{1}{2} \quad \cos\theta = 1$$

$\theta = \frac{2\pi}{3} + 2\pi n$	$\theta = 0 + 2\pi n$
$\theta = \frac{4\pi}{3} + 2\pi n$	

②  $y = -3 + 2\tan(4x + 2\pi)$  period:  $\frac{\pi}{4}$

$$y = -3 + 2\tan(4(x + \frac{\pi}{2}))$$

asymptote at  $\frac{\pi}{8} + \frac{\pi}{2} = \frac{5\pi}{8}$



$$\textcircled{3} \quad -5 \sec\left(6x + \frac{\pi}{4}\right) + 4$$

$$\frac{1}{\cos}$$

$$\cos x = 0$$

$$\frac{\pi}{2}, \frac{3\pi}{2}, -\frac{\pi}{2}, -\frac{3\pi}{2}$$

$$6x + \frac{\pi}{4} = \frac{\pi}{2}$$

$$-\frac{\pi}{4} \quad -\frac{\pi}{4}$$

$$\frac{6x}{6} = \frac{\pi}{4} \cdot \frac{1}{6}$$

$$\boxed{x = \frac{\pi}{24}}$$

$$\textcircled{4} \quad \cos a \cos b - \sin a \sin b$$

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

$$\cos a = -\frac{7}{25} \quad \sin a = \frac{24}{25}$$

$$\sec b = \frac{\sqrt{34}}{3}$$

$$\cos b = \frac{3}{\sqrt{34}}$$

$$\sin b = \frac{5}{\sqrt{34}}$$

$$\left(-\frac{7}{25}\right)\left(\frac{3}{\sqrt{34}}\right) - \left(\frac{24}{25}\right)\left(\frac{5}{\sqrt{34}}\right) = \frac{-21}{25\sqrt{34}} - \frac{120}{25\sqrt{34}} = \boxed{\frac{-141\sqrt{34}}{850}}$$