

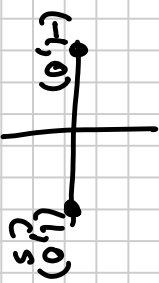
52-62 even!

52. $\sqrt{2} \tan x \cos x - \tan x = 0$ $[0, 2\pi]$

$\tan x (\sqrt{2} \cos x - 1) = 0$

$\tan x = 0$

$x = 0, \pi$



$\sqrt{2} \cos x - 1 = 0$

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

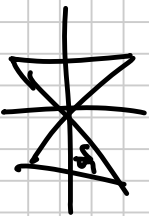
$x = \frac{\pi}{4}, \frac{7\pi}{4}$



56. $2 \sin^2 x = 1$

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

$\sin x = \pm \sqrt{\frac{1}{2}} = \pm \frac{\sqrt{2}}{2}$



$x = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

54. $\sin x \tan^2 x = \sin x$

$\sin x \tan^2 x - \sin x = 0$

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

$\sin x = 0$ ($\tan x + 1$) ($\tan x - 1$) = 0

$x = 0, \pi$

$\tan x = -1$

$x = \frac{3\pi}{4}, \frac{7\pi}{4}$

$\tan x = 1$

$x = \frac{\pi}{4}, \frac{5\pi}{4}$



58. $2 \sin^3 x + 3 \sin x + 1 = 0$

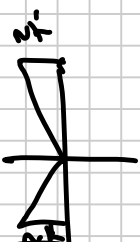
$(2 \sin^2 x + 1) (\sin x + 1) = 0$

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

$\sin x = -1$



$x = \frac{7\pi}{6}, \frac{11\pi}{6}, \frac{3\pi}{2}$



100. $3 \sin t = 2 \cos^2 t$

$$3 \sin t = 2(1 - \sin^2 t)$$

$$3 \sin t = 2 - 2 \sin^2 t$$

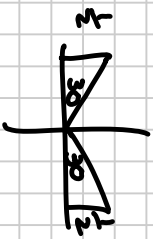
$$2 \sin^2 t + 3 \sin t - 2 = 0$$

$$(2 \sin t - 1)(\sin t + 2) = 0$$

$$\sin t = \frac{1}{2} \quad \sin t = -2$$

$$t = \emptyset$$

$$t = \frac{\pi}{6}, \frac{5\pi}{6}$$



102. $2 \sin^2 x + 3 \sin x = 2$

$$2 \sin^2 x + 3 \sin x - 2 = 0$$

Same as #100:

$$x = \frac{\pi}{6}, \frac{5\pi}{6}$$

