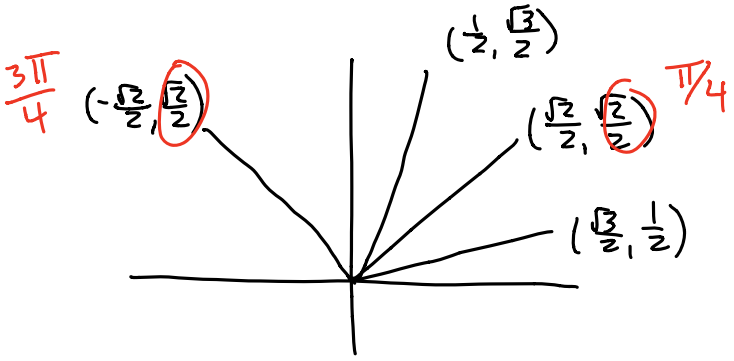
Video Quiz 8

Instructions: Show all of your work for full credit and submit by 3:30pm Mon. April 3, 2017.

1. (2 pts.) Find the exact solution(s) to $\sin x = \dfrac{\sqrt{2}}{2}$ in the interval $[0, \pi]$.



$x = \dfrac{\pi}{4}, \dfrac{3\pi}{4}$

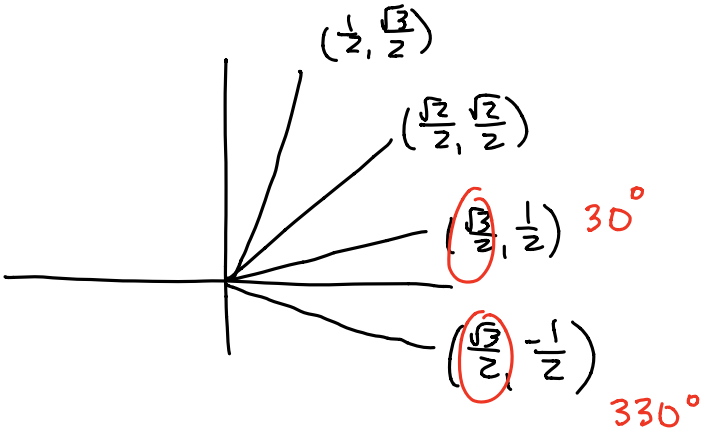
2. (2 pts.) Find the exact soluton(s) to $2\cos\theta - \sqrt{3} = 0$ for $0° \le \theta < 360°$.

$2\cos\theta - \sqrt{3} = 0$

$2\cos\theta = \sqrt{3}$

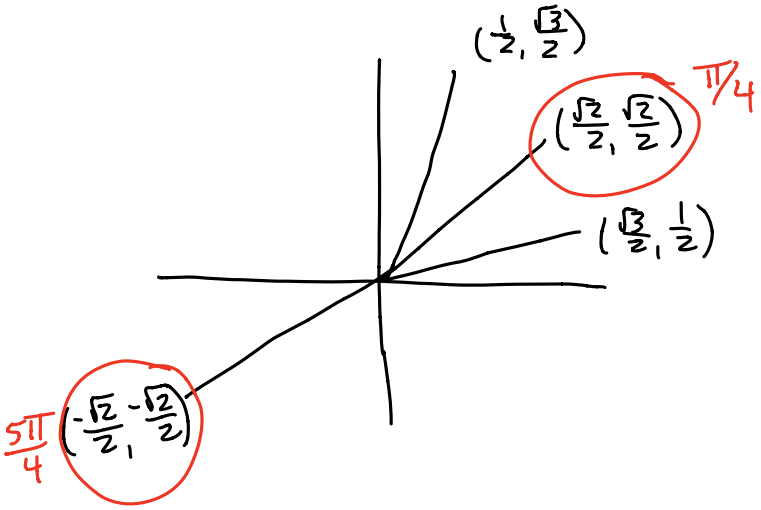
$\cos\theta = \dfrac{\sqrt{3}}{2}$

$\Rightarrow \theta = 30°, 330°$



3. (2 pts.) Find the exact solution(s) to $\tan x = 1$ for all real x.

if $\tan x = 1$ then $\sin x = \cos x$



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

$\Rightarrow \boxed{x = \frac{\pi}{4} + k\pi}$

$\tan x$ has a period of π

4. (2 pts.) Find the exact solution(s) to $\sin x = \tan x$ for $0 \leq x < 2\pi$.

$\sin x = \tan x$

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

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

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

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

$\Rightarrow \sin x = 0$

$x = 0, \pi$

$\cos x - 1 = 0$

$\cos x = 1$

$x = 0$

$\Rightarrow \boxed{x = 0, \pi}$

5. (2 pts.) Find the exact solution(s) to $\cot x = 0$ for all real x.

$\frac{\cos x}{\sin x} = 0$

$\Rightarrow \cos x = 0$

$x = \frac{\pi}{2}, \frac{3\pi}{2}, \ldots$

$\boxed{x = \frac{\pi}{2} + k\pi}$

period of $\cot x$ is π