

$$6) \frac{3\pi}{4}, \frac{7\pi}{4}$$

$$8) \frac{\pi}{3}, \frac{2\pi}{3}$$

$$10) 4.3056, 5.119$$

$$12) 1.190, 4.332$$

$$14) \frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$$

GHW#13 Due Friday. Reschedule before Friday if you're not going to be here and get Friday's note sheet. Otherwise you will take the quiz Monday when you return.

After checking hw, try the warmup in our notes.

Assignment sheet now a day off.

Jan 19-3:47 PM

$$6) \frac{3\pi}{4}, \frac{7\pi}{4}$$

$$8) \frac{\pi}{3}, \frac{2\pi}{3}$$

$$10) \{4.3056, 5.119\}$$

$$12) 1.190, 4.332$$

$$14) \left\{ \frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6} \right\}$$

$$\begin{aligned} (10) \quad \sin x + 3 &= 2.0816 \\ \sin x &= -0.9184 \\ \alpha &= \sin^{-1}(-0.9184) = 1.164 \\ \text{III} : x &= \pi + \alpha \\ \text{IV} : x &= 2\pi - \alpha \end{aligned}$$

$$\begin{aligned} (14) \quad \sec^2 x &= 4 \\ \sec x &= \pm 2 \\ \sin x &= \pm \frac{1}{2} \\ \alpha &= \frac{\pi}{6} \end{aligned}$$

Jan 19-3:47 PM

Chpt 8 Day 3

Review Problem:

Solve and find all solutions between $[0, 2\pi]$

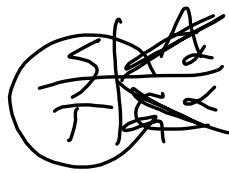
1. $2\cos x - 1 = 0$

$$\cos x = \frac{1}{2}, \alpha = \frac{\pi}{3}$$

$$\text{I: } x = \alpha = \frac{\pi}{3}$$

$$\text{IV: } x = 2\pi - \frac{\pi}{3} = \frac{5\pi}{3}$$

$$\left\{ \frac{\pi}{3}, \frac{5\pi}{3} \right\}$$



	$\pi/6$	$\pi/4$	$\pi/3$
Sin	$1/2$	$\sqrt{2}/2$	$\sqrt{3}/2$
cos	$\sqrt{3}/2$	$\sqrt{2}/2$	$1/2$
tan	$1/3$	1	$\sqrt{3}$

$x = \pi - \alpha$	$x = \alpha$
$x = \pi + \alpha$	$x = 2\pi - \alpha$

Jan 19-8:48 AM

Factorable Quadratic Trig Equations:

1. Set equation = 0
2. Factor using one of the methods we have done in class (complete square, d.o.t.s, trinomials, gcf)
3. Find reference angles and quadrants.
4. Find all values $[0, 2\pi]$

1. $2\sin^2 x - \sqrt{3}\sin x = 0$ GCF

$$\sin x (2\sin x - \sqrt{3}) = 0$$

$\sin x = 0$	$\sin x = \frac{\sqrt{3}}{2}, \alpha = \frac{\pi}{3}$
Q I: $x = \frac{\pi}{3}$	
Q II: $x = \pi - \frac{\pi}{3} = \frac{2\pi}{3}$	



$$\left\{ 0, \pi, \frac{\pi}{3}, \frac{2\pi}{3} \right\}$$

Jan 19-8:48 AM

2. $2\cos^2 x + \cos x = 1$

$$2\cos^2 x + \cos x - 1 = 0 \quad p = -2, s = 1$$

$$2(\cos^2 x + \cos x - \frac{1}{2}) = 0 \quad -1, 2$$

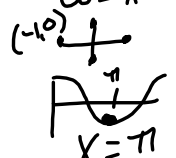
$$2\cos x(\cos x + 1) - 1(\cos x + 1) = 0$$

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

$$\cos x = -1 \quad \cos x = \frac{1}{2}, \alpha = \frac{\pi}{3}$$

Q I: $x = \frac{\pi}{3}$
 Q IV: $x = 2\pi - \frac{\pi}{3} = \frac{5\pi}{3}$

$\{ \pi, \frac{\pi}{3}, \frac{5\pi}{3} \}$



$$2x^2 + x - 1 = 0$$

Jan 19-8:48 AM

3. $\sin^2 x - \sin x = 2$

$$\sin^2 x - \sin x - 2 = 0 \quad p = -2, s = -1$$

$$(\sin x + 1)(\sin x - 2) = 0 \quad 1, -2$$

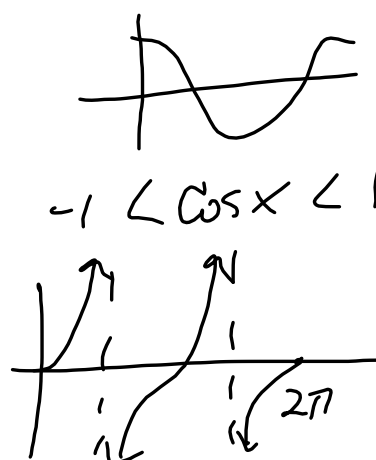
$$\sin x = -1 \quad \sin x = 2$$

$x = \frac{3\pi}{2}$
 $\alpha = \sin^{-1}(2)$
 2π
 $(1,0)$
 $\sin 2\pi = 0$

$-1 < \sin x < 1$
 $\sin x = 2$ is impossible
 reject



$$\left\{ \frac{3\pi}{2} \right\}$$



Jan 19-8:48 AM

4. $2\tan^2 x = 5\tan x + 3$

$$2\tan^2 x - 5\tan x - 3 = 0$$

$$2\tan^2 x - 6\tan x + 1\tan x - 3 = 0$$

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

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

$$\tan x = 3$$

$$\alpha = \tan^{-1}(3)$$

$$\alpha = 1.249045...$$

$$QI: x = 1.249$$

$$QIII: x = \pi + \alpha$$

$$= 4.391$$

$$\tan x = -1/2$$

$$\alpha = \tan^{-1}(1/2)$$

$$\alpha = .463647...$$

$$QII: x = \pi - \alpha$$

$$x = 2.678$$

$$QIV: x = 2\pi - \alpha$$

$$x = 5.820$$

$$\{1.249, 4.391, 2.678, 5.820\}$$

$$P = -6, S = -5$$

$$-3, -2$$

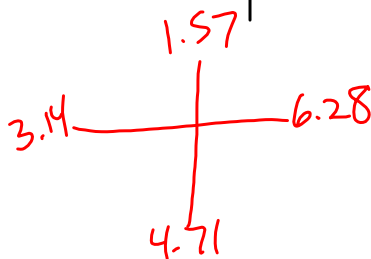
$$-6, 1$$

$$2x^2 - 5x - 3 = 0$$

$$(\quad)(\quad) = 0$$

$$(\quad)(\quad) = 0$$

$$\frac{S}{P} = \frac{A}{C}$$



Jan 19-8:48 AM

5. $2\sec^2 x - 3\sec x = 2$

$$2\sec^2 x - 3\sec x - 2 = 0$$

$$2\sec^2 x - 4\sec x + 1\sec x - 2 = 0$$

$$2\sec x(\sec x - 2) + 1(\sec x - 2) = 0$$

$$(\sec x - 2)(2\sec x + 1) = 0$$

$$\sec x = 2$$

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

$$\alpha = \pi/3$$

$$I: x = \pi/3$$

$$IV: x = 2\pi - \pi/3$$

$$x = \frac{5\pi}{3}$$

$$\sec x = -1/2$$

$$\cos x = -2$$

$$-1 < \cos x < 1$$

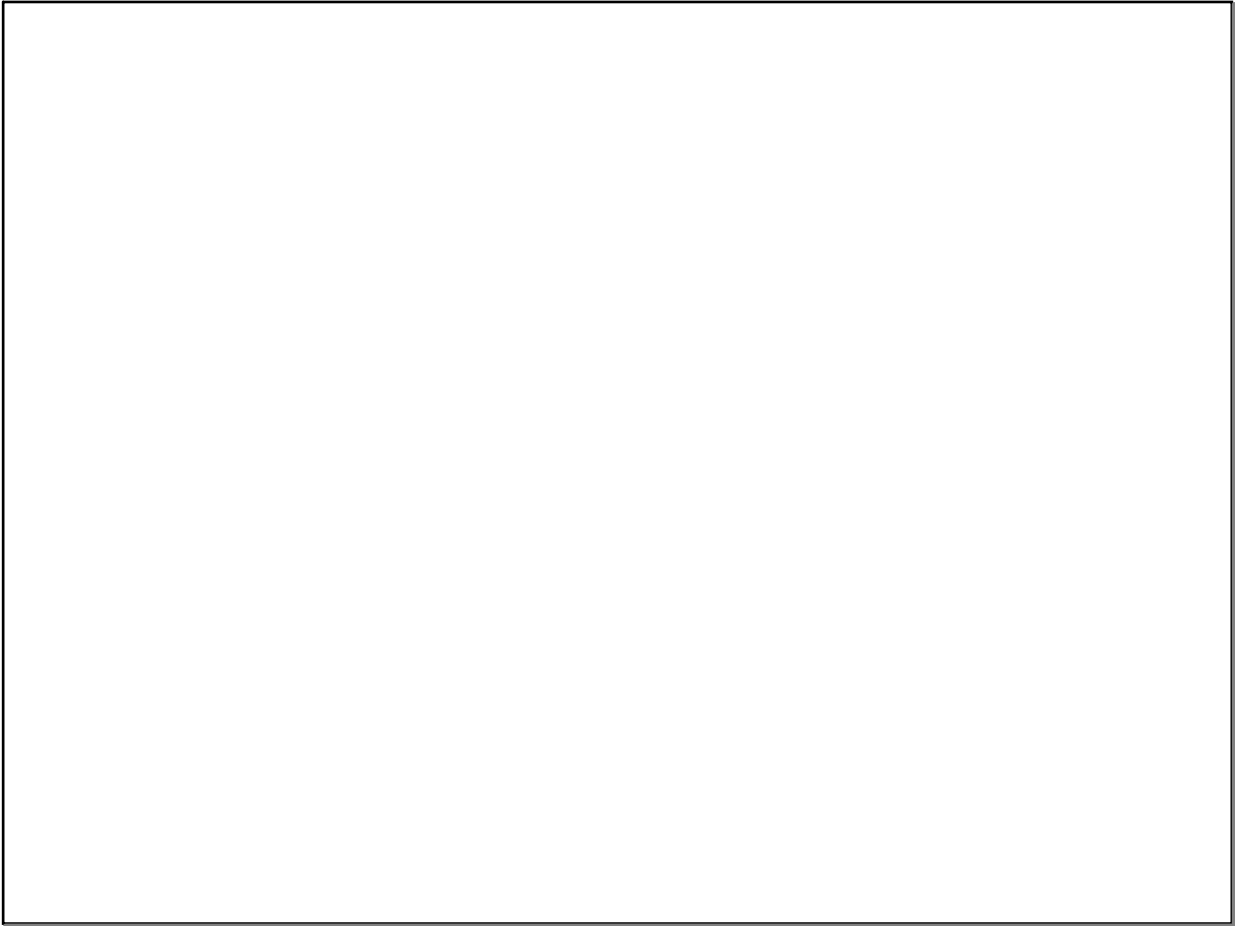
reject

$$\left\{ \frac{\pi}{3}, \frac{5\pi}{3} \right\}$$

$$P = -4, S = -3$$

$$-4, 1$$

Jan 19-8:49 AM



Feb 4-9:55 PM