

①

Office Hours: Friday 1-2:30 (AA137)

- Diagnostic Test } due Sunday 18th (midnight)
 - MAPS }
 - MLC is open!
 - precalc review on connect
 - HW1 due Monday (started, start of class)
 - Quiz #1 is Friday 23.
 - this week and last week material
 - functions
 - composition
 - trig.
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- Swap paper with them.
- look at paper for 2 min in silence.
- look for clarity
- Imagine you don't understand the problem. Would reading the solution teach you?

$$x^4 - 2x^2 - 1 = 0.$$

Let $a = x^2$. then we see,
 $a^2 - 2a - 1 = 0.$

We now apply quadratic formula to
~~see~~ yielding.

2

Example: Find all real x in $[0, 2\pi)$ where

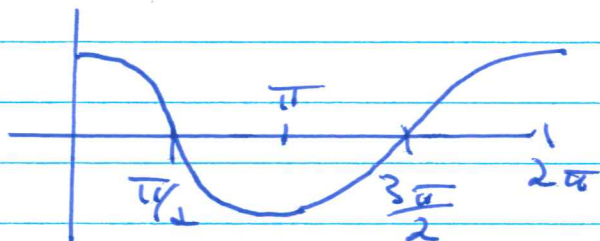
$$2\cos x \sin x + \sqrt{3}\cos x = 0.$$

$$(\cos x)(2\sin x + \sqrt{3}) = 0.$$

$$\Rightarrow \cos x = 0, \quad 2\sin x + \sqrt{3} = 0.$$

When does $\cos x = 0$?

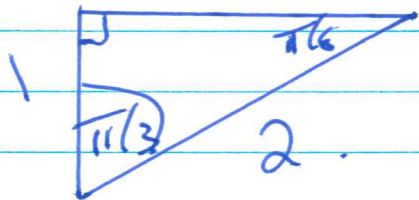
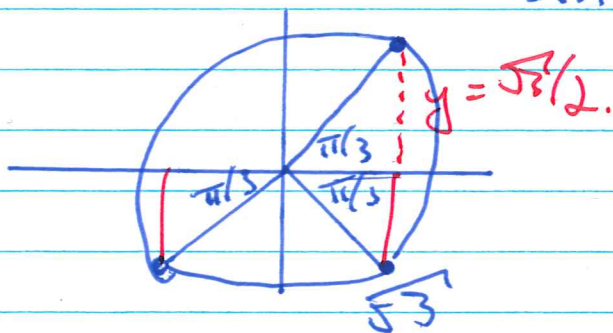
$$x = \pi/2, \quad 3\pi/2.$$



When does $2\sin x + \sqrt{3} = 0$?

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

$$\sin x = -\sqrt{3}/2.$$



"Sohl"

$$x = \pi + \pi/3 = \frac{4\pi}{3}.$$

$$2\pi - \pi/3 = \frac{5\pi}{3}.$$

All together,

$$x = \pi/2, \quad 3\pi/2, \quad \frac{4\pi}{3}, \quad \frac{5\pi}{3}.$$

③

Example! Find all x in \mathbb{R} satisfying

$$\cos x \sin x + 1 = 1$$

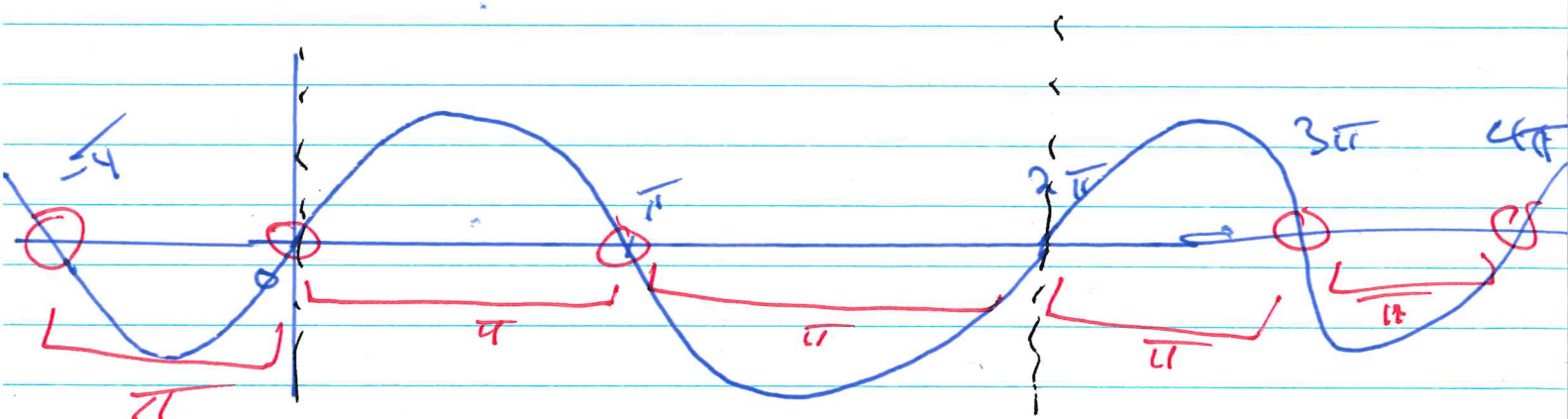
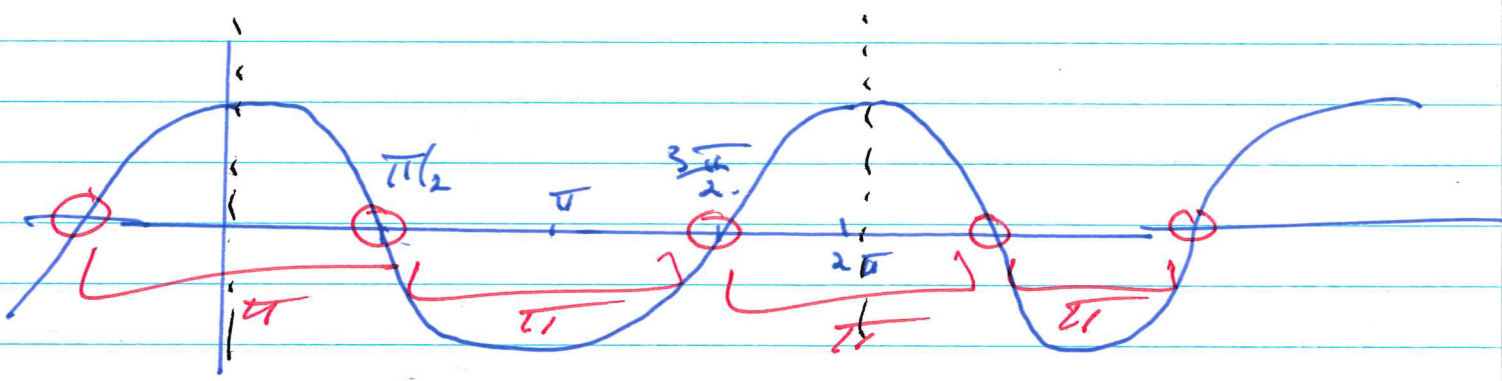
(start with x in $\Sigma(0, 2\pi)$)

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

Each time one is zero the product is zero. So, we solve

$$\cos x = 0$$

$$\sin x = 0$$



in $\Sigma(0, 2\pi)$

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

$$0, \pi$$

8.

For all x in \mathbb{R} :
We write the solutions to $\sin x = 0$.

$x = n\pi$

- n is an integer
- $n = \dots, -2, -1, 0, 1, 2, 3, \dots$
- $n \in \mathbb{Z}$.

Now for $\cos x = 0$:

$x = \pi/2 + n\pi$, n is an integer.

So, together $x = n\pi, \pi/2 + n\pi$
where $n \in \mathbb{Z}$.