

ONE SOLVING TRIG EQUATIONS

- WE KNOW WE CAN USE OUR CALCULATORS TO CALCULATE ANSWERS OR WE CAN GRAPH IT.

- WHAT ABOUT EXACT VALUES? USE CHANT / TRIANGLES

- SOLVE ALGEBRAICALLY ($0 \leq x < 2\pi$)

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

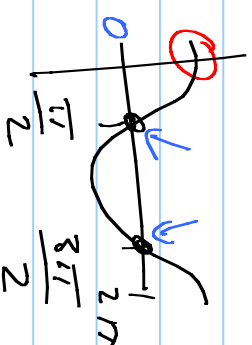
$$\cos x (\cos x - 1) = 0$$

$$\cos x = 0$$

$$\cos x - 1 = 0$$

$$x_1 = \frac{\pi}{2}$$

$$\cos x = 1$$



$$x_2 = \frac{3\pi}{2}$$

$$x_3 = 0$$

$$x_4 = \cancel{2\pi}$$

DE SOLVE $2\sin^2 x - \sin x - 1 = 0$ $(-\pi \leq x < \pi)$

SOLN QUADRATIC i.e. MUST FACTOR

$$\sqrt{2x^2 - 1x - 1} \quad \sqrt{}$$
$$2x^2 - 1x - 1 = 0$$

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

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

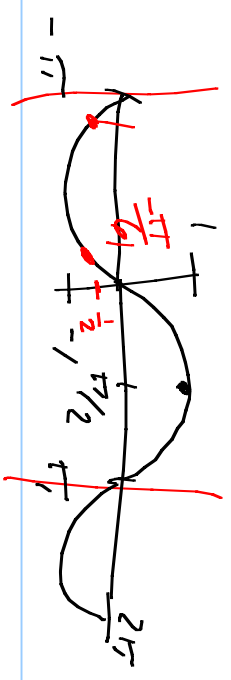
$$(x-1)(2x+1) = 0$$

$$\sin x - 1 = 0$$

$$2\sin x + 1 = 0$$

$$\sin x = 1$$

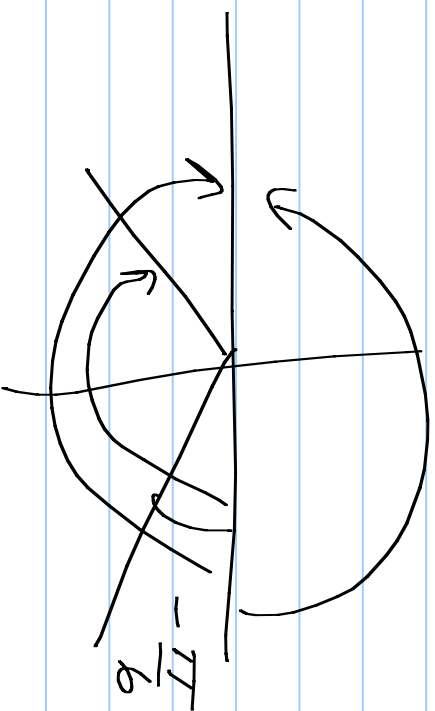
$$x_1 = \frac{\pi}{2}$$



$$2 \sin x + 1 = 0$$

$$2 \sin x = -1$$

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



$$x_2 = -\frac{\pi}{6}$$

$$x_3 = -\frac{5\pi}{6}$$

QUADRATIC FORMULA

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

2a

LC 302 # 1, 5, 6, 7 A, C, E...

313 # 1, 5, 7-9, 11, 12 A, C, E ...