

## WARMUP - in notes

FOIL

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

$$2x^2 - x + 2x - 1$$

$$2x^2 + x - 1$$

$$(\sin\theta + 1)(2\sin\theta - 1)$$

$$2\sin^2\theta - \sin\theta + 2\sin\theta - 1$$

$$2\sin^2\theta + \sin\theta - 1$$

FACTOR

$$2x^2 - x - 1$$

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

$$2\cos^2 x - \cos x - 1$$

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

## Section 6.8 Solving Trig Equations Part 2

ex: Solve on  $0 \leq \theta < 2\pi$

$$2\cos^2\theta + \cos\theta - 1 = 0$$

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

$$2\cos\theta - 1 = 0 \quad \cos\theta + 1 = 0$$

$$2\cos\theta = 1 \quad \cos\theta = -1$$

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

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

ex: Solve for  $0 \leq \theta < 2\pi$

$$\underbrace{\cos^2 \theta} - \underbrace{\sin^2 \theta} + \underbrace{\sin \theta} = 0$$

$$1 - \sin^2 \theta - \sin^2 \theta + \sin \theta = 0$$

$$-1(-2\sin^2 \theta + \sin \theta + 1) = 0 \cdot (-1)$$

$$2\sin^2 \theta - \sin \theta - 1 = 0$$

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

$$2\sin \theta + 1 = 0 \quad \sin \theta - 1 = 0$$

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

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

← get eq. to have just sine

ex: Solve for  $0 \leq \theta < 2\pi$

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

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

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

$$\underline{\sin \theta} = 0$$

$$\downarrow$$
$$0, \pi$$

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

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

$$\downarrow$$
$$\frac{\pi}{6}, \frac{11\pi}{6}$$

$$\sin(2\theta) = 2 \sin \theta \cos \theta$$

$$\frac{2ab - \sqrt{3}a}{a(2b - \sqrt{3})}$$

Solve on  $0 \leq \theta < 2\pi$

$$1) 2\cos^2\theta + \cos\theta = 0$$

$$2) 2\sin^2\theta + \sin\theta - 1 = 0$$

$$3) \sin^2\theta - \underline{\cos^2\theta} = 1 + \underline{\cos\theta}$$

$$4) (\tan\theta - 1)(\sec\theta - 1) = 0$$

$$5) \sin^2\theta = 6(\cos\theta + 1)$$

$$\cancel{1} - \cos^2\theta - \cos^2\theta = \cancel{1} + \cos\theta$$

$$-2\cos^2\theta = \cos\theta$$

$$0 = 2\cos^2\theta + \cos\theta$$

$$0 = \underline{\cos\theta} (2\underline{\cos\theta} + 1)$$