

WARMUP - Factor

1) $x^2 - 4$

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

2) $4x^2 - 1$

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

3) $6x^2 - 3x$

$3x(2x-1)$

$A^2 - B^2 = (A+B)(A-B)$

4) $x^2 - 3x - 4$

~~$\begin{array}{r} -4 \\ 1 \quad -4 \\ -3 \end{array}$~~

	x	-4
x	x^2	$-4x$
1	x	-4

$(x-4)(x+1)$

5) $2x^2 - 3x - 2$

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

~~$\begin{array}{r} -4 \\ -4 \quad 1 \\ -3 \end{array}$~~

	$2x$	1
x	$2x^2$	$1x$
-2	$-4x$	-2

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

6) $3x^2 + 4x + 1$

~~$\begin{array}{r} 3 \\ 1 \quad 3 \\ 4 \end{array}$~~

$3x^2 + 1x + 3x + 1$
 $x(3x+1) + 1(3x+1)$

$(3x+1)(x+1)$

Section 6.8 Solving Trig Equations Part 2

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

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

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

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

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

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

$2x^2 + x - 1$

~~$\begin{array}{r} -2 \\ 2 \quad -1 \\ 1 \end{array}$~~

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

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

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

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

$$\underbrace{1 - \sin^2 \theta} - \sin^2 \theta + \sin \theta = 0$$

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

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

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

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

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

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

← get equation to have same trig function.

$$\begin{pmatrix} -2 & 1 \\ -1 & 1 \end{pmatrix}$$

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

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

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

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

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

$$\sin \theta = 0$$

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

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

$$\theta = 0, \pi, \frac{\pi}{6}, \frac{11\pi}{6}$$

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

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

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

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

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

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