Factor:

1) $x^2 - 4$

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

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

2) $4x^2 - 1$

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

3) $6x^2 - 3x$

$3x(2x-1)$

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

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

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

$\left(\frac{2}{2}x - \frac{4}{2}\right)(2x+1)$

$\dfrac{2x^2 - 4x + x - 2}{2x(x-2) + 1(x-2)}$

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

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

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

$(3x+1)\left(\frac{3x}{3} + \frac{3}{3}\right)$

$\boxed{(3x+1)(x+1)}$

Section 6.8 Solving Trig Equations Part 2

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

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

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

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

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

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

$\boxed{\theta = \dfrac{\pi}{3}, \dfrac{5\pi}{3}, \pi}$

$2x^2 + x - 1$

$(2x - \underline{1})(x + 1)$

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

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

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

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

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

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

$(2\sin\theta - 1)(\sin\theta + 1)$ ~~crossed out~~

$$2\sin\theta + 1 = 0 \qquad \sin\theta - 1 = 0$$
$$\sin\theta = -\frac{1}{2} \qquad \sin\theta = 1$$

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

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

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

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

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

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

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

<u>Assignment</u>

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

$6x+3 = 3(2x + \frac{1}{2})$

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

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

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

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

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

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

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

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