

my work for p 86

(10)

$$8 \cos\left(\frac{\pi}{2}x\right) = 6$$

$$\text{Period} = \frac{2\pi}{\frac{\pi}{2}} = 4$$

$$\cos u = \frac{3}{4}$$

$$\cos^{-1}\left(\frac{3}{4}\right) = .7227$$

$$.7227 + 4k$$

$$2\pi - .7227 + 4k$$

$$5.5605 + 4k$$

$$\frac{\pi}{2}x = .7227 + 2\pi k$$

$$.4601 + 4k$$

$$\frac{\pi}{2}x = 5.5605 + 2\pi k$$

$$3.5394 + 4k$$

(12) $4 \sin(4t) = 1$

$$\sin 4t = \frac{1}{4}$$

$$\sin^{-1}\left(\frac{1}{4}\right) =$$

$$.2527$$

$$4t = .2527 + 2\pi k$$

$$.0632 + \frac{\pi}{2}k$$

$$4t = 2.8889 + 2\pi k$$

$$.7222 + \frac{\pi}{2}k$$

$$\pi - .2527$$

$$2.8889$$

$$(18) \quad \tan x \sin x - \sin x = 0$$

$$\sin x (\tan x - 1) = 0$$

$$\sin x = 0 \quad \tan x = 1$$

$$\boxed{0}, \boxed{\pi}$$

$$\boxed{\frac{\pi}{4}}, \boxed{\frac{5\pi}{4}}$$

$$(20) \quad \cos^2 \theta = \frac{1}{2} \quad \cos \theta = -\frac{1}{\sqrt{2}} \quad \cos \theta = \frac{1}{\sqrt{2}}$$

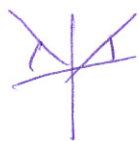
$$\cos \theta = \pm \sqrt{\frac{1}{2}}$$

$$\frac{3\pi}{4}, \frac{5\pi}{4}, \frac{\pi}{4}, \frac{7\pi}{4}$$

$$(22) \quad \csc^2 T = 3$$

$$\csc T = \sqrt{3}$$

$$\sin T = \frac{1}{\sqrt{3}}$$



$$\sin^{-1}\left(\frac{1}{\sqrt{3}}\right) = \boxed{0.6155} \quad \boxed{2.5261}$$

$$(24) \quad 8 \sin^2 x + 6 \sin x + 1 = 0$$

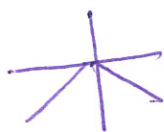
$$(4 \sin x + 1)(2 \sin x + 1) = 0$$

$$\sin x = -\frac{1}{4}$$

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



$$2.527$$



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

$$\boxed{3.3943} \text{ and } \boxed{6.0308} \quad \boxed{\frac{7\pi}{6}} \quad \boxed{\frac{11\pi}{6}}$$

$$(26) \quad 8\cos^2\theta = 3 - 2\cos\theta$$

$$8\cos^2\theta + 2\cos\theta - 3 = 0$$

$$(8\cos\theta + 3)(\cos\theta - 1)$$

$$(4\cos\theta + 3)(2\cos\theta - 1)$$

$$\cos\theta = \frac{3}{4} \quad \cos\theta = \frac{1}{2}$$

$$0.7227$$

$$5.5605$$

$$2.4189$$

$$\pi - 2.4189 =$$

$$\pi +$$

$$3.8643$$

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

$$\frac{4\pi}{3}$$

$$\frac{\pi}{3}$$

$$\frac{5\pi}{3}$$

$$(28) \quad 9\sin^2 w - 2 = 4\sin^2 w$$

$$4\sin^2 w - 9\sin w + 2 = 0$$

$$(4\sin w - 1)(\sin w - 2)$$

$$\sin w = \frac{1}{4} \quad \sin w = 2$$

$$0.2527$$

$$\pi -$$

$$2.8890$$

$$(30) \quad 6\cos^2 x + 7\sin x - 8 = 0$$

$$6(1 - \sin^2 x) + 7\sin x - 8 = 0$$

$$6 - 6\sin^2 x + 7\sin x - 8 = 0$$

$$-6\sin^2 x + 7\sin x - 2 = 0$$

$$6\sin^2 x - 7\sin x + 2 = 0$$

$$(3\sin x - 2)(2\sin x - 1) = 0$$

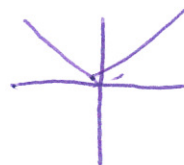
$$\sin x = \frac{2}{3} \quad \sin x = \frac{1}{2} \quad \frac{\pi}{6}$$

$$0.7297 = x$$

$$2.4119 = x$$

$$\frac{\pi}{6}$$

$$\frac{5\pi}{6}$$



$$(32) \sin^2 T = \cos T$$

$$1 - \cos^2 T = \cos T$$

$$\cos^2 T + \cos T - 1$$

~~cos~~

$$\cos T = .618 \quad \cos T = \cancel{1.618}$$

$$T = .9046$$

$$\cancel{5.3786} \quad \checkmark$$

$$(34) \cos^3 T = -\cos T$$

$$\cos^3 T + \cos T = 0$$

$$\cos^2 T (\cos^2 T + 1) = 0$$

$$\cos^2 T = 0$$

$$\cos^2 T + 1 = 0$$

$$\frac{\pi}{2} \text{ and } \frac{3\pi}{2}$$

$$\cos^2 = \sqrt{-1} \text{ DNE}$$

$$(36) \tan^5 x - 9 \tan x = 0$$

$$\tan x (\tan^4 x - 9) = 0$$

$$\tan x (\tan^2 + 3)(\tan^2 - 3)$$

$$0 + \pi k \quad \frac{\pi}{3} + \pi k \quad -\frac{\pi}{3} + \pi k$$

$$\tan x = 0 \quad (0)$$

$$\tan x = \pm \sqrt{3} \quad \left(\frac{\pi}{3}\right) \quad -\frac{\pi}{3}$$

$$\tan x = \pm \sqrt{-3} \text{ DNE} \quad \left(\frac{5\pi}{3}\right)$$

$$(38) \quad 2 \sin x \cos x - \sin x + 2 \cos x - 1 = 0$$

$$2 \cos x (\sin x + 1) - (\sin x + 1) = 0$$

$$(\sin x + 1)(2 \cos x - 1) = 0$$

$$\sin x = -1$$

$$\boxed{\frac{3\pi}{2}}$$

$$\boxed{\frac{3\pi}{2}}$$

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

$$\boxed{\frac{\pi}{3}}$$

$$\boxed{\frac{5\pi}{3}}$$

$$\frac{\pi}{3}$$

39
40

$$3 \cos x = \cot x$$

$$3 \cos x = \frac{\cos x}{\sin x}$$

$$3 \sin x \cos x = \cos x$$

$$3 \sin x \cos x - \cos x = 0$$

$$\cos x (3 \sin x - 1) = 0$$

$$\cos x = 0$$

$$\boxed{\frac{\pi}{2}}$$

$$\boxed{\frac{3\pi}{2}}$$

$$3 \sin x - 1 = 0$$

$$\sin x = \frac{1}{3}$$

$$\boxed{x = 1.3398}$$

$$\pi - 1.3398$$

$$\boxed{2.8018}$$