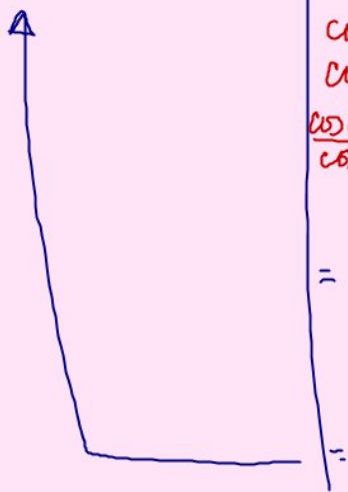


Study hard for Test 5.1-5.2

pg 460  
40.

$$\frac{\sin A \cos B + \cos A \sin B}{\cos A \cos B - \sin A \sin B} = \frac{\tan A + \tan B}{1 - \tan A \tan B}$$



$$\begin{aligned} & \frac{\cos B \frac{\sin A}{\cos A} + \frac{\sin B \cos A}{\cos B \cos A}}{\frac{\cos A \cos B}{\cos A \cos B} - \frac{\sin A \cdot \frac{\sin B}{\cos B}}{\cos A \cos B}} \\ &= \frac{\frac{\sin A \cos B + \cos A \sin B}{\cos A \cos B}}{\frac{\cos A \cos B - \sin A \sin B}{\cos A \cos B}} \\ &= \frac{\sin A \cos B + \cos A \sin B}{\cos A \cos B - \sin A \sin B} \end{aligned}$$

452

$$3 \sin t = 2 \cos^2 t$$

$$60. \quad 3 \sin t = 2(1 - \sin^2 t)$$

$$3 \sin t = 2 - 2 \sin^2 t$$

$$2 \sin^2 t + 3 \sin t - 2 = 0$$

$$w = \sin t$$

$$2w^2 + 3w - 2 = 0$$

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

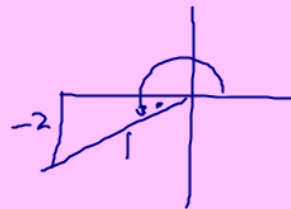
$$(2 \sin t - 1)(\sin t + 2) = 0$$

$$2 \sin t - 1 = 0 \text{ or } \sin t + 2 = 0$$

$$\sin t = \frac{1}{2} \text{ or } \sin t = -2$$

$$\boxed{t = \frac{\pi}{6}, \frac{5\pi}{6}}$$

$[0, 2\pi)$



pg 452  
24.

$$\frac{1 + \tan x}{1 + \cot x} = \frac{\frac{\cos x}{\cos x} + \frac{\sin x}{\cos x}}{\frac{\sin x}{\sin x} + \frac{\cos x}{\sin x}} = \frac{\frac{\cos x + \sin x}{\cos x}}{\frac{\sin x + \cos x}{\sin x}} = \frac{\cancel{\cos x + \sin x}}{\cos x} \cdot \frac{\sin x}{\cancel{\cos x + \sin x}} = \frac{\sin x}{\cos x} = \tan x$$

pg 460

52.  $\frac{1 + \sin x}{\cos x} = \frac{1}{\cos x} + \frac{\sin x}{\cos x} = \sec x + \tan x$

452

 $[0, 2\pi)$ 

$$52. \quad \sqrt{2} \tan x \cos x - \tan x = 0$$

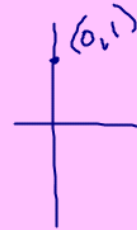
$$\tan x (\sqrt{2} \cos x - 1) = 0$$

$$\tan x = 0 \quad \text{or} \quad \sqrt{2} \cos x - 1 = 0$$

$$x = 0, \pi$$

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

$$x = \frac{\pi}{4}, \frac{7\pi}{4}$$



pg 452

 $[0, 2\pi)$ 

54.

$$\sin x \tan^2 x = \sin x$$

$$\sin x \tan^2 x - \sin x = 0$$

$$\sin x (\tan^2 x - 1) = 0$$

$$\sin x = 0$$

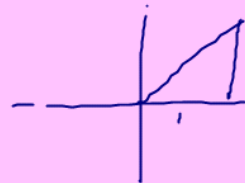
$$\tan^2 x - 1 = 0$$

$$x = 0, \pi$$

$$\tan^2 x = 1$$

$$\tan x = \pm 1$$

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



460

$$28. \frac{\cot v - 1}{\cot v + 1} = \frac{1 - \tan v}{1 + \tan v}$$

$$\frac{\frac{1}{\tan v} - \frac{1 \tan v}{1 \tan v}}{\frac{1}{\tan v} + \frac{1 \tan v}{1 \tan v}}$$

$$\frac{1 - \tan v}{\tan v}$$


---


$$\frac{1 + \tan v}{\tan v}$$

460

$$52. \frac{1 + \sin x}{\cos x} = \frac{1}{\cos x} + \frac{\sin x}{\cos x} = \sec x + \tan x$$

$[0, 2\pi)$

$$62 \quad 2\sin^2 x + 3\sin x = 2$$

$$2\sin^2 x + 3\sin x - 2 = 0$$

$$w = \sin x$$

$$2w^2 + 3w - 2$$

$$(2w-1)(w+2)$$

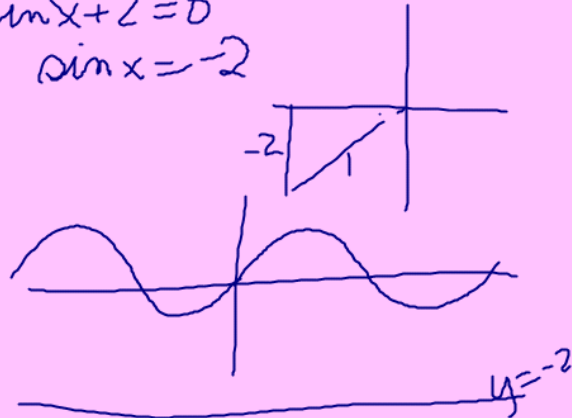
$$(2\sin x - 1)(\sin x + 2) = 0$$

$$2\sin x - 1 = 0 \quad \text{or} \quad \sin x + 2 = 0$$

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

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

$$x = \frac{\pi}{6}, \frac{5\pi}{6}$$



460

$$40. \quad \frac{\sin A \cos B + \cos A \sin B}{\cos A \cos B - \sin A \sin B} = \frac{\tan A + \tan B}{1 - \tan A \tan B}$$

$$\frac{\cos B \sin A}{\cos B \cos A} + \frac{\sin B \cos A}{\cos B \cos A}$$

$$\frac{\cos A \cos B}{\cos A \cos B} - \frac{\sin A \sin B}{\cos A \cos B}$$

$$\frac{\sin A \cos B + \cos A \sin B}{\cos A \cos B}$$

$$\frac{\cos A \cos B - \sin A \sin B}{\cos A \cos B}$$

$[0, 2\pi)$

58.  $2\sin^2 x + 3\sin x + 1 = 0$

$w = \sin x$

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

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

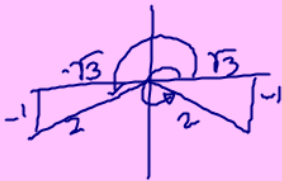
$2\sin x + 1 = 0$  or  $\sin x + 1 = 0$

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

$x = \frac{7\pi}{6}, \frac{11\pi}{6}$

$\sin x = -1$

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



452

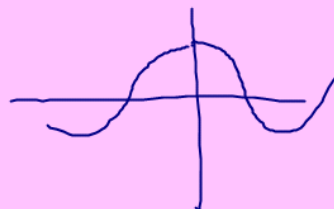
22.  $\sec^2(-x) - \tan^2(x)$

$= \sec^2 x - \tan^2 x$

$= \overbrace{\tan^2 x + 1} - \tan^2 x$

$= 1$

$\sec(-x) = \sec x$



12. yellow pages: even

$$\begin{aligned} & \cos^3 x + \sin^2 x \cos x \\ &= \cos x (\cos^2 x + \sin^2 x) \\ &= \cos x \end{aligned}$$