p.451) 51-62
(51) $\frac{\pi}{6}, \frac{\pi}{2}, \frac{5 \pi}{6}, \frac{3 \pi}{2}$
(52) $0, \frac{\pi}{4}, \pi, \frac{7 \pi}{4}$
(53) $0, \pi$
(54) $0, \frac{\pi}{4}, \frac{3 \pi}{4}, \pi, \frac{5 \pi}{4}, \frac{7 \pi}{4}$
(57) $\frac{\pi}{3}+2 \pi n, \frac{5 \pi}{3}+2 \pi n$
(58) $\frac{4 \pi}{3}+2 \pi n, \frac{3 \pi}{2}+2 \pi n, \frac{5 \pi}{3}+2 \pi n$
(59) $\pi n$
(60) $\frac{\pi}{6}+2 \pi n, \frac{5 \pi}{6}+2 \pi n$
(61) $\pi n$
(62) $\frac{\pi}{6}+2 \pi n, \frac{5 \pi}{6}+2 \pi n$

Solutions
(51)

$$
\begin{gathered}
2 \cos x \sin x-\cos x=0 \\
\cos x(2 \sin x-1)=0 \\
\cos x=0 \quad 2 \sin x-1=0 \\
x=\cos ^{-1} 0 \quad \sin x=\frac{1}{2} \\
x=\frac{\pi}{2}, \frac{3 \pi}{2} \quad \begin{array}{r}
x=\sin ^{-1}\left(\frac{1}{2}\right) \\
x
\end{array} \quad \begin{array}{r}
x, \frac{\pi}{6}
\end{array}
\end{gathered}
$$

53

$$
\begin{aligned}
& \tan x \sin ^{2} x=\tan x \\
& \tan x \sin ^{2} x-\tan x=0 \\
& \tan x\left(\sin ^{2} x-1\right)=0 \\
& \tan x=0 \quad \sin ^{2} x-1=0 \\
& x=\tan ^{-1}(0) \quad \sin ^{2} x=1 \\
& x=0, \pi \quad \sin x=1 \\
& x=\sin ^{-1}(1) \\
& x=\text { 叐 }
\end{aligned}
$$

(52)

$$
\begin{aligned}
& \sqrt{2} \tan x \cos x-\tan x=0 \\
& \tan x(\sqrt{2} \cos x-1)=0 \\
& \tan x=0 \\
& x=\sin \cos x-1=0 \\
& x=0, \pi \\
& x=\sqrt{2} \cos x=1 \\
& \cos x=\frac{\sqrt{2}}{2} \\
& x=\frac{\pi}{4}, \frac{7 \pi}{4}
\end{aligned}
$$

(54)

$$
\begin{aligned}
& \sin x \tan ^{2} x=\sin x \\
& \sin x \tan ^{2} x-\sin x=0 \\
& \sin x\left(\tan ^{2} x-1\right)=0 \\
& \sin x=0 \quad \tan ^{2} x=1 \\
& x=\sin ^{-1} 0 \quad \tan ^{-1} x= \pm 1 \\
& x=0, \pi 1 \quad x=\tan ^{-1}( \pm 1) \\
& x=\frac{\pi}{4}, \frac{3 \pi}{4}, \frac{5 \pi}{4}, \frac{7 \pi}{4}
\end{aligned}
$$

(55)

$$
\begin{aligned}
& \tan ^{2} x=3 \\
& \tan x= \pm \sqrt{3} \\
& x=\tan ^{-1}( \pm \sqrt{3}) \\
& x=\pi \pi 4 \pi
\end{aligned}
$$

(56)

$$
\begin{aligned}
2 \sin ^{2} x & =1 \\
\sin ^{2} x & =\frac{1}{2} \\
\sin x & = \pm \sqrt{2}
\end{aligned}
$$

$$
\begin{aligned}
& 1 \operatorname{lin} x-1( \pm \sqrt{3}) \\
& x=\tan ^{-1}\left( \pm \frac{\pi}{3}, \frac{2 \pi}{3}, \frac{5 \pi}{3}\right. \\
& x=\frac{\pi}{3}
\end{aligned}
$$

(57)

$$
\begin{gathered}
4 \cos ^{2} x-4 \cos x+1=0 \\
(2 \cos x-1)(2 \cos x-1)=0 \\
1 \\
2 \cos x-1=0 \\
\cos x=\frac{1}{2} \\
x=\frac{\pi}{3}+2 \pi n, \frac{5 \pi}{3}+2 \pi n
\end{gathered}
$$

(59)

$$
\begin{gathered}
\sin ^{2} \theta-2 \sin \theta=0 \\
\sin \theta(\sin \theta-2)=0 \\
\sin \theta=0 \quad \sin \theta=2 \\
\theta=0, \pi \quad \theta=\varnothing \\
0+2 \pi n \Rightarrow \pi n \\
\pi+2 \pi n \Rightarrow \pi n
\end{gathered}
$$

(61)

$$
\left.\begin{array}{c}
\cos (\sin x)=1 \\
\cos ^{-1}[\cos (\sin x)]=\cos ^{-1} 1 \\
\sin x=0 \\
x=0+2 \pi n \\
x+2 \pi n
\end{array}\right\} \pi n
$$

(6)

$$
\begin{aligned}
& 2 \sin ^{2} x+3 \sin x=2 \\
& 2 \sin ^{2} x+3 \sin x-2=0 \\
& (2 \sin x-1)(\sin x+2)=0 \\
& \sin x=\frac{1}{2} \quad \sin x=-2 \\
& x=\frac{\pi}{6}+2 \pi n \\
& x=\frac{5 \pi}{6}+2 \pi n
\end{aligned}
$$

$$
\begin{aligned}
& \sin -\lambda-\frac{\overline{2}}{} \\
& \sin x= \pm \frac{\sqrt{2}}{2} \\
& x=\frac{\pi}{4}, \frac{3 \pi}{4}, \frac{5 \pi}{4}, \frac{7 \pi}{4}
\end{aligned}
$$

(58)

$$
\begin{aligned}
& 2 \sin ^{2} x+3 \sin x+1=0 \\
& (2 \sin x+1)(\sin x+1)=0 \\
& \sin x^{\prime}=-1 / 2 \quad \sin x=-1 \\
& x=\frac{4 \pi}{3}+2 \pi n, \quad x=\frac{3 \pi}{2}+2 \pi n
\end{aligned}
$$

$$
X=\begin{array}{r}
\frac{4 \pi}{3}+2 \pi n, \\
\frac{5 \pi}{3}+2 \pi n
\end{array}
$$

$$
\begin{aligned}
& 3 \sin t=2 \cos ^{2} t \\
& 3 \sin t-2 \cos ^{2} t=0 \\
& 3 \sin t-2\left(1-\sin ^{2} t\right)=0 \\
& 3 \sin t-2+2 \sin ^{2} t=0 \\
& 2 \sin ^{2} t+3 \sin t-2=0 \\
& (2 \sin t-1)(\sin t+2)=0 \\
& \sin t=\frac{1}{2} \quad \sin t=-2 \\
& t=\frac{\pi}{6}+2 \pi n \quad t=\varnothing \\
& \frac{5 \pi}{6}+2 \pi n
\end{aligned}
$$

