Trigonometric Equations Ex 11.1 Q7(iii)

$$\sec x\cos 5x+1=0$$

$$\frac{\cos 5x+\cos x}{\cos x}=0\Rightarrow \cos x\neq 0$$

$$2\cos 3x\cos 2x=0$$

$$\cos 3x=0 \text{ or } \cos 2x=0$$

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

$$x=\frac{\pi}{4},\frac{\pi}{6}$$

Trigonometric Equations Ex 11.1 Q7(iv)

$$2\sin^2\theta+5-6=0$$

$$\sin^2\theta=\frac{1}{2}$$

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

$$\theta=n\pi\pm\frac{\pi}{4}$$

Trigonometric Equations Ex 11.1 Q7(v)

$$\sin x-3\sin 2x+\sin 3x=\cos x-3\cos 2x+\cos 3x$$

$$(\sin x+\sin 3x)-3\sin 2x-(\cos x+\cos 3x)+3\cos 2x=0$$

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

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

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

$$\cos x=\frac{3}{2} \text{ or } \sin 2x-\cos 2x=0$$

$$\text{but } \cos x\in[-1,1]\Rightarrow \cos x\neq\frac{3}{2}$$

$$\sin 2x=\cos 2x$$

$$\tan 2x=1$$

$$2x=n\pi+\frac{\pi}{4}$$

$$x=\frac{n\pi}{2}+\frac{\pi}{8}$$

********** END **********