Review
(32)

$$
\begin{array}{l|l}
\frac{\cos y}{(1+\sin y)}+\frac{1+\sin y}{(\cos y)}=2 \sec y \\
\frac{\cos ^{2} y+(1+\sin y)^{2}}{\cos y(1+\sin y)} & \partial\left(\frac{1}{\cos y}\right) \\
\frac{\cos ^{2} y+1+2 \sin y+\sin ^{2} y}{\cos y(1+\sin y)} & \frac{\partial}{\cos y}
\end{array}
$$

Factor


$$
\frac{2(1+\sin y)}{\cos y(1+\sin y)}
$$

$$
\frac{\partial}{\cos y}
$$

$$
\begin{aligned}
& \text { (33) } \sin (x+y)+5 \sin (x-y)=2 \sin x \cos y \\
& \sin x \cos y+\cos x \sin y+\sin x \cos y-\cos x \sin y \\
& 2 \sin x \cos y \\
& 2 \sin x \cos y \\
& \text { (28) } 2 \theta(1-\cos 2 \theta)=4 \sin ^{3} \theta \cos \theta \\
& \left.2 \sin \theta \cos \theta\left(1-\cos ^{2} \theta-\sin ^{2} \theta\right)\right) \\
& 2 \sin \theta \cos \theta\left(1-\cos ^{2} \theta+\sin ^{2} \theta\right) \\
& 2 \sin \theta \cos \theta\left(\sin ^{3} \theta+\sin ^{2} \theta\right. \\
& (2 \sin \theta \cos \theta)\left(2 \sin ^{2} \theta\right) \\
& 4 \sin ^{3} \theta \cos \theta
\end{aligned}
$$

$$
\begin{aligned}
& \text { (15) } \cos ^{2} \theta-\sin ^{2} \theta=\partial \cos ^{2} \theta-1 \\
& \cos ^{2} \theta-\left(1-\cos ^{2} \theta\right) \\
& \cos ^{2} \theta-1+\cos ^{2} \theta \\
& \left.2 \cos ^{2} \theta-1\right] \\
& \text { (16) } \begin{array}{l}
2 \cos ^{2} \theta-1 \\
\cos ^{4} \cos ^{4} \theta-\sin ^{4} \theta \\
\left(\cos ^{2} \theta+\sin ^{2} \theta\right)\left(\cos ^{2} \theta-\sin ^{2} \theta\right) \\
(1)\left(\cos ^{2} \theta-\sin ^{2} \theta\right) \\
\left(\cos ^{2} \theta-\sin ^{2} \theta\right)
\end{array}
\end{aligned}
$$

(20)

| $\frac{1}{(1+\sin \theta)}+\frac{1}{(1-\sin \theta)}=\partial \sec ^{2} \theta$ |  |
| :---: | :---: |
| $\frac{1-\sin \theta+1+\sin \theta}{(1+\sin \theta)(1-\sin \theta)}$ | $\partial\left(\frac{1}{\cos ^{2} \theta}\right)$ |
| $\frac{\partial}{\left(1-\sin ^{2} \theta\right.}$ | $\frac{\partial}{\cos ^{2} \theta}$ |
| $\frac{\partial}{\cos ^{2} \theta}$ |  |

(2)

$$
\begin{aligned}
& +\tan \theta+\frac{1}{\tan \theta}=(\csc \theta \sec \theta \\
& \frac{\sin \theta}{\cos \theta}+\frac{\cos \theta}{\sin \theta}=\left(\frac{1}{\sin \theta)\left(\frac{1}{\cos \theta}\right)}\right. \\
& \frac{\sin ^{2} \theta+\cos ^{2} \theta}{\sin \theta \cos \theta} \\
& \frac{1}{\sin \theta \cos \theta} \\
& \frac{1}{\sin \theta \cos \theta}
\end{aligned}
$$

$$
\begin{aligned}
& \text { (29) } \cos ^{4} \theta=1-2 \sin ^{2} \theta+\sin ^{4} \theta \\
& \left(\underline{\left.\cos ^{2} \theta\right)\left(\cos ^{2} \theta\right)}\right. \\
& \left(1-\sin ^{2} \theta\right)\left(1-\sin ^{2} \theta\right) \\
& 1-2 \sin ^{2} \theta+\sin ^{4} \theta+\sin ^{4} \theta
\end{aligned}
$$

(17)

$$
\text { (17) } \begin{aligned}
& \frac{1-\sin ^{2} \theta}{\csc ^{2} \theta-1}=\sin ^{2} \theta \\
& \frac{\cos ^{2} \theta}{\cot ^{2} \theta} \\
& \frac{\cos ^{2} \theta}{\frac{\cos ^{2} \theta}{\sin ^{2} \theta}} \\
& \cos ^{2} \theta \cdot \frac{\sin ^{2} \theta}{\cos ^{2} \theta} \\
& \sin ^{2} \theta
\end{aligned}
$$

Review Perioda
(15)

$$
\begin{aligned}
& \cos ^{2} \theta-\left(\sin ^{2} \theta\right. \\
& \cos ^{2} \theta-\left(1-\cos ^{2} \theta\right) \\
& \cos ^{2} \theta-1+\cos ^{2} \theta \\
& 2 \cos ^{2} \theta-1
\end{aligned}
$$

(6)

$$
\begin{aligned}
& \cos \theta \sin \theta \cot \theta=\cos ^{2} \theta \\
& (\cos \theta)(\sin \theta)\left(\frac{\cos \theta}{\sin \theta}\right) \\
& \cos ^{2} \theta
\end{aligned}
$$

$$
\begin{aligned}
& \text { (16) } \begin{array}{l}
\text { D.f } \cos ^{4} \theta-\sin ^{4} \theta=1 \\
\sin ^{2}=\cos ^{2} \theta-\sin ^{2} \theta \\
\left(\cos ^{2} \theta-\sin ^{2} \theta\right)\left(\cos ^{2} \theta+\sin ^{2} \theta\right) \\
\left(\cos ^{2} \theta-\sin ^{2} \theta\right)(1) \\
\cos ^{2} \theta-\sin ^{2} \theta
\end{array}
\end{aligned}
$$

(20) | $\frac{1}{(1+\sin \theta)}+\frac{1}{(1-\sin \theta)}$ | $=2\left(\frac{1}{\sec ^{2} \theta}\right.$ |
| :---: | ---: |
| $\frac{1-\sin \theta+1+\sin \theta}{(1+\sin \theta)(1-\sin \theta)}$ |  |
| $\frac{\partial}{1-\sin ^{2} \theta}$ | $\frac{\partial}{\cos ^{2} \theta}$ |
| $\frac{\partial}{\cos ^{2} \theta}$ |  |

$$
\begin{aligned}
& \text { (28) } \cos ^{4} \theta=1-2 \sin ^{2} \theta+\sin ^{4} \theta \\
& \left(\cos ^{2} \theta\right)\left(\cos ^{3} \theta\right) \\
& \left(1-\sin ^{2} \theta\right)\left(1-\sin ^{2} \theta\right) \\
& 1-2 \sin ^{2} \theta+\sin ^{4} \theta
\end{aligned}
$$

$$
\begin{aligned}
& \text { (24) } \frac{\sec \theta-1}{\sec \theta+1}=\frac{1-\cos \theta}{1+\cos \theta} \\
& \begin{array}{l}
(\sec \theta-1)(1+\cos \theta) \\
\sec \theta+\cos \theta \sec \theta)-1-\cos \theta \\
\sec \theta+1)(1-\cos \theta) \\
\sec \theta+\cos \theta\left(\frac{1}{\cos \theta)}-1-\cos \theta\right. \\
\sec \theta-\cos \theta)+1-\cos \theta \\
\sqrt{2}\left(\frac{1}{\cos \theta)}+1-\cos \theta\right. \\
\sec \theta+1-1-\cos \theta
\end{array} \\
& \begin{array}{ll}
\sec \theta-\cos \theta & \sqrt{\sec \theta}+1-\cos \theta \\
\sec \theta-\cos \theta
\end{array}
\end{aligned}
$$

Final Review

$$
\begin{aligned}
& \text { (3) }\left(\sin (x+y)(\sin (x-y)) \cdot \cos ^{2} y-\cos ^{2} x\right. \\
& (\sin x \cos y+\cos x \sin y)(\sin x \cos y-\cos x \sin y) \\
& \sin ^{2} x \cos ^{2} y-\cos ^{2} x-\sin ^{2} y \\
& \left(1-\cos ^{2} x\right. \\
& \left.\cos ^{2} x \cos ^{2} y\right)-\cos ^{2} x\left(1-\cos ^{2} y\right) \\
& \cos ^{2} y-\cos ^{2} x \cos ^{2} y-\cos ^{2} x+\cos ^{2} x \cos ^{2} y \\
& \cos ^{2} y-\cos ^{2} x
\end{aligned}
$$

(4)

$$
\begin{aligned}
\cos ^{4} \theta & =1-2 \sin ^{2} \theta+\sin ^{4} \theta \leftarrow \text { Factor } \\
& =\left(1-\sin ^{2} \theta\right)\left(1-\sin ^{2} \theta\right) \leftarrow \text { Pythagorean } \\
& =\left(\cos ^{2} \theta\right)\left(\cos ^{2} \theta\right) \\
& =\cos ^{4} \theta
\end{aligned}
$$

(5)

$$
\begin{aligned}
& \sqrt[\tan 4]{4}=\sec ^{4} \theta\left(1-2 \operatorname{sos}^{2} \theta+\cos ^{4} \theta\right) \text { «Factor } \\
& \frac{1}{\cos ^{4} \theta}\left(1-\cos ^{2} \theta\right)\left(1-\cos ^{2} \theta\right) \\
& \frac{1}{\cos ^{4} \theta}\left(\cos ^{2} \theta\right)\left(\sin ^{2} \theta\right) \\
& \frac{\sin ^{4} \theta}{\cos ^{4} \theta}
\end{aligned}
$$

(6) $\tan \theta=\frac{1+\sin \theta-\cos ^{2} \theta}{\cos \theta(1+\sin \theta)}$

$$
\frac{\sin \theta}{\cos \theta} \left\lvert\, \begin{aligned}
& \cos \theta(1+\sin \theta) \\
& \frac{\sin ^{2} \theta+\sin \theta}{\cos \theta(1+\sin \theta)} \\
& \frac{\sin \theta(\sin \theta+1)}{\cos \theta(1+\sin \theta)}
\end{aligned}\right. \text { Factor }
$$



$$
\begin{aligned}
& \text { (30) } \begin{array}{l}
\cos (x+y)-\cos (x-y)=-2 \sin x \sin y \\
\cos x \cos y-\sin x \sin y-(\cos x \cos y+\sin x \sin y)=-2 \sin x \sin y \\
\cos x \cos y-\sin x \sin y-\cos x \cos y-\sin x \sin y \\
-2 \sin x \sin y
\end{array}
\end{aligned}
$$

(31)

$$
\begin{aligned}
& \frac{1+\cos 2 \theta}{\sin 2 \theta}=\cot \theta \\
& \left.\frac{1+\left(\cos ^{2} \theta-\sin ^{2} \theta\right)}{2 \sin \theta \cos \theta} \right\rvert\, \frac{\cos \theta}{\sin \theta} \\
& \frac{1+\cos ^{2} \theta-\sin ^{2} \theta}{2 \sin \theta \cos \theta} \\
& \frac{\cos ^{2} \theta+\cos ^{2} \theta}{2 \sin \theta \cos ^{2} \theta} \\
& \frac{\partial \cos \theta}{2 \sin \theta \cos \theta} \\
& \frac{\cos \theta}{\sin \theta}
\end{aligned}
$$

$$
\begin{aligned}
& \text { (32) } \begin{array}{l}
\frac{\cos y}{1+\sin y}+\frac{1+\sin y}{\cos y}=2(\sec y) \\
\begin{array}{l}
\frac{\cos ^{2} y+(1+\sin y)(1+\sin y)}{\cos y(1+\sin y)} \\
\frac{\cos ^{2} y+1+2 \sin y+\sin y}{\cos y(1+\sin y)}
\end{array} \quad 2\left(\frac{1}{\cos y)}\right. \\
\frac{\partial+2 \sin y}{\cos y(1+\sin y)} \\
\frac{\partial(1+\sin y)}{\cos y(1+\sin y)}
\end{array}
\end{aligned}
$$

