Review

(32) $\dfrac{\cos y}{(1+\sin y)} + \dfrac{1+\sin y}{(\cos y)} = 2\sec y$

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

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

Factor $\rightarrow$ $\dfrac{2+2\sin y}{\cos y(1+\sin y)}$

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

$\dfrac{2}{\cos y}$

$2\left(\dfrac{1}{\cos y}\right)$

$\dfrac{2}{\cos y}$

(33) $\sin(x+y)+\sin(x-y) = 2\sin x\cos y$

$\sin x\cos y + \cos x\sin y + \sin x\cos y - \cos x\sin y$

$2\sin x\cos y$

$2\sin x\cos y$

(28) $\sin 2\theta(1-\cos 2\theta) = 4\sin^3\theta\cos\theta$

$2\sin\theta\cos\theta\left(1-(\cos^2\theta-\sin^2\theta)\right)$

$2\sin\theta\cos\theta\left(1-\cos^2\theta+\sin^2\theta\right)$

$2\sin\theta\cos\theta\left(\sin^2\theta+\sin^2\theta\right)$

$(2\sin\theta\cos\theta)(2\sin^2\theta)$

$4\sin^3\theta\cos\theta$

$4\sin^3\theta\cos\theta$

(15) $\cos^2\theta - \sin^2\theta = 2\cos^2\theta - 1$

$\cos^2\theta - (1 - \cos^2\theta)$

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

$2\cos^2\theta - 1$

$2\cos^2\theta - 1$

(16) Diff. of Squares

$\cos^4\theta - \sin^4\theta = \cos^2\theta - \sin^2\theta$

$(\cos^2\theta + \sin^2\theta)(\cos^2\theta - \sin^2\theta)$

$(1)(\cos^2\theta - \sin^2\theta)$

$(\cos^2\theta - \sin^2\theta)$

(20) $\dfrac{1}{(1+\sin\theta)} + \dfrac{1}{(1-\sin\theta)} = 2\sec^2\theta$

$\dfrac{1-\sin\theta + 1+\sin\theta}{(1+\sin\theta)(1-\sin\theta)}$

$\dfrac{2}{(1-\sin^2\theta)}$

$\dfrac{2}{\cos^2\theta}$

$2\left(\dfrac{1}{\cos^2\theta}\right)$

$\dfrac{2}{\cos^2\theta}$

(a) $\tan\theta + \frac{1}{\tan\theta} = \csc\theta\sec\theta$

$\frac{\sin\theta}{\cos\theta} + \frac{\cos\theta}{\sin\theta}$

$\frac{\sin^2\theta + \cos^2\theta}{\sin\theta\cos\theta}$

$\frac{1}{\sin\theta\cos\theta}$

$\left(\frac{1}{\sin\theta}\right)\left(\frac{1}{\cos\theta}\right)$

$\frac{1}{\sin\theta\cos\theta}$

(29) $\cos^4\theta = 1 - 2\sin^2\theta + \sin^4\theta$

$(\cos^2\theta)(\cos^2\theta)$

$(1-\sin^2\theta)(1-\sin^2\theta)$

$1 - 2\sin^2\theta + \sin^4\theta$

$1 - 2\sin^2\theta + \sin^4\theta$

(17) $\dfrac{1-\sin^2\theta}{\csc^2\theta - 1} = \sin^2\theta$

$\dfrac{\cos^2\theta}{\cot^2\theta}$

$\dfrac{\cos^2\theta}{\frac{\cos^2\theta}{\sin^2\theta}}$

$\cancel{\cos^2\theta} \cdot \dfrac{\sin^2\theta}{\cancel{\cos^2\theta}}$

$\sin^2\theta$

Review Period 3

⑮ $\cos^2\theta - \sin^2\theta = 2\cos^2\theta - 1$

$\cos^2\theta - (1 - \cos^2\theta)$

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

$2\cos^2\theta - 1$

⑯ $\cos\theta \sin\theta \cot\theta = \cos^2\theta$

$(\cos\theta)(\sin\theta)\left(\frac{\cos\theta}{\sin\theta}\right)$

$\cos^2\theta$

⑯ Diff of Squares

$\cos^4\theta - \sin^4\theta = \cos^2\theta - \sin^2\theta$

$(\cos^2\theta - \sin^2\theta)(\cos^2\theta + \sin^2\theta)$ (the $\cos^2\theta + \sin^2\theta$ factor = 1)

$(\cos^2\theta - \sin^2\theta)(1)$

$\cos^2\theta - \sin^2\theta$

(a) $\dfrac{1}{(1+\sin\theta)} + \dfrac{1}{(1-\sin\theta)}$

$= \dfrac{1-\sin\theta + 1+\sin\theta}{(1+\sin\theta)(1-\sin\theta)}$

$= \dfrac{2}{1-\sin^2\theta}$

$= \dfrac{2}{\cos^2\theta}$

$= 2\left(\dfrac{1}{\cos^2\theta}\right)$

$= 2\sec^2\theta$

(29) $\cos^4\theta =$ $1 - 2\sin^2\theta + \sin^4\theta$

$(\cos^2\theta)(\cos^2\theta)$

$(1-\sin^2\theta)(1-\sin^2\theta)$

$1 - 2\sin^2\theta + \sin^4\theta$

(24) $\dfrac{\sec\theta - 1}{\sec\theta + 1} = \dfrac{1 - \cos\theta}{1 + \cos\theta}$

$(\sec\theta - 1)(1 + \cos\theta)$

$\sec\theta + \cos\theta\sec\theta - 1 - \cos\theta$

$\sec\theta + \cos\theta\left(\frac{1}{\cos\theta}\right) - 1 - \cos\theta$

$\sec\theta + 1 - 1 - \cos\theta$

$\sec\theta - \cos\theta$

$(\sec\theta + 1)(1 - \cos\theta)$

$\sec\theta - \cos\theta\sec\theta + 1 - \cos\theta$

$\sec\theta - \cos\theta\left(\frac{1}{\cos\theta}\right) + 1 - \cos\theta$

$\sec\theta - 1 + 1 - \cos\theta$

$\sec\theta - \cos\theta$

Final Review

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

$(\sin x\cos y + \cos x\sin y)(\sin x\cos y - \cos x\sin y)$

$\sin^2 x\cos^2 y - \cos^2 x\sin^2 y$

$(1-\cos^2 x)\cos^2 y - \cos^2 x(1-\cos^2 y)$

$\cos^2 y - \cos^2 x\cos^2 y - \cos^2 x + \cos^2 x\cos^2 y$

$\cos^2 y - \cos^2 x$

$\cos^2 y - \cos^2 x$