

$$\begin{aligned} \cos^3 \theta + \sin^2 \theta \cos \theta &= \cos \theta \\ \cos \theta (\cos^2 \theta + \sin^2 \theta) &= \cos \theta \\ \cos \theta (1) &= \cos \theta \\ \cos \theta &= \cos \theta \checkmark \end{aligned}$$

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

$$\begin{aligned} \sec \theta \sin \theta &= \tan \theta \\ \frac{1}{\cos \theta} \cdot \sin \theta &= \tan \theta \\ \frac{\sin \theta}{\cos \theta} &= \tan \theta \checkmark \end{aligned}$$

$$\frac{\csc \theta}{\sec \theta} = \cot \theta$$

$$\frac{1}{\sin \theta} \div \frac{1}{\cos \theta} = \cot \theta$$

$$\frac{1}{\sin \theta} \cdot \frac{\cos \theta}{1} = \cot \theta$$

$$\frac{\cos \theta}{\sin \theta} = \cot \theta \checkmark$$

$$5. \frac{\sec^2 \theta - 1}{\tan \theta} = \tan \theta$$

$$\frac{\tan^2 \theta}{\tan \theta} = \tan \theta$$

$$\tan \theta = \tan \theta \quad \checkmark$$

$$6. \frac{\cot \theta}{\csc^2 \theta - 1} = \tan \theta$$

$$\frac{\cot \theta}{\cot^2 \theta} = \tan \theta$$

$$\frac{1}{\cot \theta} = \tan \theta \quad \checkmark$$

$$7. \sec \theta \sin \theta \cot \theta = 1$$

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

$$1 = 1 \quad \checkmark$$

$$8. \cot \theta \csc \theta \tan^2 \theta = \sec \theta$$

$$\frac{\cos \theta}{\sin \theta} \cdot \frac{1}{\sin \theta} \cdot \frac{\sin^2 \theta}{\cos^2 \theta} = \sec \theta$$

$$\frac{1}{\cos \theta} = \sec \theta$$

$$9. \cos^2 \theta - \sin^2 \theta = 2\cos^2 \theta - 1$$

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

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

$$2\cos^2 \theta - 1 = 2\cos^2 \theta - 1 \quad \checkmark$$

$$10. \cos^2 \theta - \sin^2 \theta = 1 - 2\sin^2 \theta$$

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

$$1 - 2\sin^2 \theta = 1 - 2\sin^2 \theta \quad \checkmark$$

$$11. \cot \theta \sin \theta = \cos \theta$$

$$\frac{\cos \theta \cdot \sin \theta}{\sin \theta} = \cos \theta$$

$$\cos \theta = \cos \theta \quad \checkmark$$

$$12). \frac{\tan \theta}{\sec \theta} = \sin \theta$$

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

$$\frac{\sin \theta \cdot \cos \theta}{\cos \theta} = \sin \theta$$

$$\sin \theta = \sin \theta \quad \checkmark$$

$$13). \sin \theta (1 + \csc \theta) = \sin \theta + 1$$

$$\sin \theta + 1 = \sin \theta + 1 \quad \checkmark$$

$$14). (1 + \tan^2 \theta)^2 = \sec^2 \theta + 2 \tan \theta$$

$$1 + 2 \tan \theta + \tan^2 \theta = \sec^2 \theta + 2 \tan \theta$$

$$1 + \tan^2 \theta + 2 \tan \theta = \sec^2 \theta + 2 \tan \theta$$

$$\sec^2 \theta + 2 \tan \theta = \sec^2 \theta + 2 \tan \theta$$

	1	$\tan \theta$
1	1	$\tan \theta$
$\tan \theta$	$\tan \theta$	$\tan^2 \theta$

$$15) (1 + \tan^2 \theta) \cos^2 \theta = 1$$

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

$$\frac{1}{\cos^2 \theta} \cdot \cos^2 \theta = 1$$

$$1 = 1$$

$$16). \cos \theta = \sec \theta - \sin \theta \tan \theta$$

$$= \frac{1}{\cos \theta} - \frac{\sin \theta \cdot \sin \theta}{\cos \theta}$$

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

$$\text{cont. } \frac{\cos^2 \theta}{\cos \theta} = \cos \theta$$

$$\cos \theta = \cos \theta \quad \checkmark$$

$$17) (\sec \theta + \tan \theta)(\sec \theta - \tan \theta) = 1$$

$$\sec^2 \theta - \tan^2 \theta = 1 \quad \checkmark$$

$$1 = 1 \quad \checkmark$$

$$18) \sec \theta = \sec \theta - \cos \theta$$

$$\frac{\sec \theta}{\cos \theta} = \frac{1}{\cos \theta} = \frac{\sec \theta \cdot \cos \theta}{\cos \theta}$$

$$\frac{1}{\cos \theta} \cdot \frac{\sec \theta}{\sec \theta} = \frac{1}{\cos \theta} \cdot \frac{\sec \theta}{\sec \theta}$$

$$\frac{\sec \theta}{\cos \theta} = \frac{\sec \theta}{\cos \theta} = 1$$

$$\frac{\sec \theta}{\cos \theta} = \frac{\sec \theta}{\cos \theta} \quad \checkmark$$