

#27

$$(\sin x)(\tan x + \cot x)$$

$$= \sin x \cdot \tan x + \sin x \cdot \cot x$$

$$= \sin x \cdot \frac{\sin x}{\cos x} + \cancel{\sin x} \cdot \frac{\cos x}{\cancel{\sin x}}$$

$$= \frac{\sin^2 x}{\cos x} + \frac{\cos x \cdot \cancel{\cos x}}{1 \cdot \cancel{\cos x}} \quad \text{common D}$$

$$= \frac{\sin^2 x + \cos^2 x}{\cos x} = \frac{1}{\cos x} = \sec x$$

#28.

$$\sin \theta - \tan \theta \cos \theta + \cos(\pi/2 - \theta)$$

$$= \sin \theta - \frac{\sin \theta}{\cos \theta} \cdot \cancel{\cos \theta} + \sin \theta$$

$$= \cancel{\sin \theta} - \cancel{\sin \theta} + \sin \theta = \sin \theta$$

#29

$$\sin x \cos x \tan x \sec x \csc x$$

$$= \sin x \cdot \cancel{\cos x} \cdot \frac{\cancel{\sin x}}{\cancel{\cos x}} \cdot \frac{1}{\cos x} \cdot \frac{1}{\cancel{\sin x}}$$

$$= \frac{\sin x}{\cos x} = \tan x$$

#30

$$\frac{(\sec y - \tan y)(\sec y + \tan y)}{\sec y} \quad \begin{matrix} (a-b)(a+b) \\ a^2 - b^2 \end{matrix}$$

$$= \frac{\sec^2 y - \tan^2 y}{\sec y} = \frac{1}{\sec y} = \cos y \quad \text{KCF}$$