

6.1, #10b,11b,19b:

(a). Find a common denominator for $\frac{1}{\cos x}$ and $\frac{\cos x}{1-\cos x}$.

(b). Expand $(\cos x + \tan x)^2$ and simplify.

(c). Factor $3 \sin^2 x - 4 \sin x \cos x - 4 \cos^2 x$.

6.1, #28,30: Simplify

(a). $\frac{\tan x}{\sin x \sec^2 x}$;

(b). $\frac{\sin^2 x + 1}{\cos^2 x} + 1$.

6.1, #68, modified: If $\frac{\pi}{2} < \theta < \pi$, write $\frac{1}{(1-100x^2)^{3/2}}$ as a function of θ by making the substitution $x = \frac{1}{10} \sin \theta$.

6.1, #72: Factor and simplify $1 - \cot^4 x$.

6.1, #39,42,49,52,56,90,94: Verify

(a). $\cot x [\cot(-x) + \tan(-x)] = -\csc^2 x$

(b). $\frac{\cot x}{\csc x} - \frac{\csc x}{\cot x} = -\sin x \tan x$.

(c). $\frac{1}{\cos x + \sin x \cos x} = \frac{1 - \sin x}{\cos^3 x}$

(d). $\frac{\sin x + \cos x}{\sin x - \cos x} = \frac{1 + 2 \sin x \cos x}{1 - 2 \cos^2 x}$

(e). $\ln |\csc \theta + \cot \theta| = -\ln |\csc \theta - \cot \theta|$.

(f). $\frac{\sec \theta + 1}{\csc \theta} = \frac{1 + \cos \theta}{\cot \theta}$.

(g). $\frac{\sin^4 \theta - 9}{\cos^2 \theta + 2} = \cos^2 \theta - 4$.