c) $\dfrac{1+\tan^2 x}{\cot^2 x+1}=\tan^2 x$

$LS=\dfrac{\sec^2 x}{\csc^2 x}$ or $LS=\dfrac{1+\tan^2 x}{\frac{1}{\tan^2 x}+1}$

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

$=\dfrac{\sin^2 x}{\cos^2 x}$

$=\tan^2 x = RS$

$=\dfrac{1+\tan^2 x}{\frac{1}{\tan^2 x}+\frac{\tan^2 x}{\tan^2 x}}$

$=\dfrac{1+\tan^2 x}{\frac{1+\tan^2 x}{\tan^2 x}} \neq \dfrac{\frac{1+\tan^2 x}{1+\tan^2 y}}{\tan^2 x}$

$=1+\tan^2 x \cdot \dfrac{\tan^2 x}{1+\tan^2 x}$

$=\tan^2 x = RS$

$\dfrac{\frac{a}{b}}{\frac{c}{d}}=\dfrac{a}{b}\cdot\dfrac{d}{c}$

d) $\dfrac{\cos^2 x \tan x}{\cot x} - 1 = -\cos^2 x$

$LS = \dfrac{\cos^2 x \cdot \frac{\sin x}{\cos x}}{\frac{\cos x}{\sin x}} - 1$

$= \dfrac{\cos x \sin x}{\frac{\cos x}{\sin x}} - 1$

$= \sin^2 x - 1$

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

$= -\cos^2 x$

$= RS$

P. 132 #11, 14

$= \cos^2 x \left(\dfrac{\tan x}{\cot x}\right) - 1$

$= \cos^2 x \tan^2 x - 1$

$= \cos^2 x \cdot \dfrac{\sin^2 x}{\cos^2 x} - 1$

$= \sin^2 x - 1$

$= -\cos^2 x$

p. 132

11. c) $\dfrac{\cot x - \tan x}{\cot x + \tan x} = 2\cos^2 x - 1$

$$LS = \frac{\frac{1}{\tan x} - \tan x}{\frac{1}{\tan x} + \tan x}$$

$$= \frac{\frac{1 - \tan^2 x}{\tan x}}{\frac{1 + \tan^2 x}{\tan x}} \qquad = \frac{1 - \tan^2 x}{\tan x} \cdot \frac{\tan x}{1 + \tan^2 x}$$

$$= \frac{1 - \tan^2 x}{1 + \tan^2 x}$$

$$= \frac{1 - \tan^2 x}{\sec^2 x}$$

$$= \cos^2 x (1 - \tan^2 x)$$

$$= \cos^2 x \left(1 - \frac{\sin^2 x}{\cos^2 x}\right)$$

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

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

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

$$= 2\cos^2 x - 1 = RS$$

11. h) $\tan^2 x + \cos^2 x - 1 = \sin^2 x \tan^2 x$

$LS = \tan^2 x - (1 - \cos^2 x)$

$= \tan^2 x - \sin^2 x$

$= \frac{\sin^2 x}{\cos^2 x} - \sin^2 x$

$= \sin^2 x \left(\frac{1}{\cos^2 x} - 1\right)$

$= \sin^2 x (\sec^2 x - 1)$

$= \sin^2 x \tan^2 x$

$= RS$