tanA+cotA=2cosec2A

Using the definitions of the trigonometric functions

$tanA = \frac{sinA}{cosA}$ and $otA = \frac{sinA}{cosA}$, so

$$LH = tanA + cotA = \frac{sinA}{cosA} + \frac{cosA}{sinA} = \frac{sin^2 x + cos^2 x}{cosAsinA}$$

Using the Pythagorean identities

$$sin^2 x + cos^2 x = 1$$

Using the double-angle formulae

$$cosAsinA = \frac{1}{2} sin2A$$

$$LH = \frac{sin^2 x + cos^2 x}{cosAsinA} = \frac{1}{\frac{1}{2} sin2A} = \frac{2}{sin2A}$$

Using the definitions of the trigonometric functions

$cosec2A = \frac{1}{sin2A}$, so

$RH = \frac{2}{sin2A}$, so LH=RH