Inverse Trigonometric Functions Ex 4.2 Q1

$$= \cos^{-1}\left(\frac{a\cos\theta + b}{a + b\cos\theta}\right) \qquad \left\{ \text{Since } \cos\theta = \frac{1 - \tan^2\frac{\theta}{2}}{1 + \tan^2\frac{\theta}{2}} \right\}$$

$$= \text{RHS}$$

Hence,

$$2\tan^{-1}\left(\sqrt{\frac{a-b}{a+b}}\ \tan\frac{\theta}{2}\right) = \cos^{-1}\left(\frac{a\cos\theta + b}{a + b\cos\theta}\right)$$

*********** END **********