

6 Show that:

a  $(\tan \theta + \cot \theta)(\sin \theta + \cos \theta) \equiv \sec \theta + \operatorname{cosec} \theta$

b  $\frac{\operatorname{cosec} x}{\operatorname{cosec} x - \sin x} \equiv \sec^2 x$

c  $(1 - \sin x)(1 + \operatorname{cosec} x) \equiv \cos x \cot x$

d  $\frac{\cot x}{\operatorname{cosec} x - 1} - \frac{\cos x}{1 + \sin x} \equiv 2 \tan x$

e  $\frac{1}{\operatorname{cosec} \theta - 1} + \frac{1}{\operatorname{cosec} \theta + 1} \equiv 2 \sec \theta \tan \theta$

f  $\frac{(\sec \theta - \tan \theta)(\sec \theta + \tan \theta)}{1 + \tan^2 \theta} \equiv \cos^2 \theta$