ex 8.2

(1) $LHS = \frac{\tan 47^\circ}{\cot 43^\circ}$

$= \frac{\cot(90^\circ - 47^\circ)}{\cot 43^\circ}$

$= \frac{\cot 43^\circ}{\cot 43^\circ}$

$= 1$

$= RHS$ True

(2) $\cos^2 23^\circ - \sin^2 67^\circ$

$= \sin^2(90^\circ - 23^\circ) - \sin^2 67^\circ$

$= \sin^2 67^\circ - \sin^2 67^\circ$

$= 0$ False

(3) $\sin 80^\circ - \cos 80^\circ$

$= \sin 80^\circ - \sin(90^\circ - 80^\circ)$

$= \sin 80^\circ - \sin 10^\circ$

is +ve

$\because \sin\theta$ increases as θ increases False

(4) $LHS = \sqrt{(1-\cos^2\theta)\sec^2\theta}$

$= \sqrt{\sin^2\theta \times \frac{1}{\cos^2\theta}}$

$= \sqrt{\tan^2\theta}$

$= \tan\theta$ True

(5) $\cos A + \cos^2 A = 1$

$\Rightarrow \cos A = 1 - \cos^2 A$

$\Rightarrow \cos A = \sin^2 A \quad \ldots (1)$

$LHS = \sin^2 A + \sin^4 A$

$= \sin^2 A(1 + \sin^2 A)$

$= \cos A(1 + \cos A)$

using (i)

$= \cos A + \cos^2 A$

$= 1$ (given)

$= RHS$ True

(6) $LHS = (\tan\theta + 2)(2\tan\theta + 1)$

$= 2\tan^2\theta + \tan\theta + 4\tan\theta + 2$

$= 2\tan^2\theta + 5\tan\theta + 2$

$= 1 + \tan^2\theta + 1 + \tan^2\theta + 5\tan\theta$

$= \sec^2\theta + \sec^2\theta + 5\tan\theta$

$[\because 1 + \tan^2\theta = \sec^2\theta]$

$= 2\sec^2\theta + 5\tan\theta$

$\neq RHS$ False

NCERT Exemplar Solutions by Dev Anoop (Bathinda)