1. Show that $\frac{1}{1-\sin\theta}+\frac{1}{1+\sin\theta}=2\sec^2\theta$.

2. Show that $\cot A+\tan 2A=\cot A\sec 2A$.

3. Solve the equation $3\cos 2\theta+\cos\theta=2$ for $0^0<\theta<360^0$.

4. If $t=\tan\frac{\theta}{2}$, show that $\tan\theta=\frac{2t}{1-t^2}$. Hence, solve the equation $3\cos\theta+2\sin\theta-3=0$ for $0\le\theta\le 2\pi$.

5. Express $4\cos x-3\sin x$ in the form $R\cos(x+\theta)$, where $R>0$ and θ is acute angle.
   Hence
   a) State the maximum and minimum value for $8-4\cos x+3\sin x$.
   b) Solve the equation $4\cos x-3\sin x=-\frac{5}{2}$ for $0^0\le x\le 360^0$.

Answer :

3) $\theta=33.6^0, 180^0, 326.4^0$
4) $\theta=0, 1.18, 2\pi$
5) $5\cos(x+36.9^0)$
   a) maximum value $=13$, minimum value $=3$
   b) 83.1^0 , 203.1^0