Higher_Trig_Expansions.

1. For acute angles **P** and **Q**, $\sin P = \frac{12}{13}$ and $\sin Q = \frac{3}{5}$.

   Show that the **exact** value of $\sin(P+Q)$ is $\frac{63}{65}$ *(3)*

2. If $\cos\theta = \frac{4}{5}$, $0 \le \theta < \frac{\pi}{2}$ find the **exact** value of $\sin 4\theta$ *(3)*

3. Find exact solutions of the equation

   $$4\sin^2 x = 1, \quad 0 \le x < 2\pi$$ *(4)*

4. Solve algebraically the equation

   $$\cos 2x^\circ + 5\cos x^\circ - 2 = 0, \quad 0 \le x < 360$$ *(5)*

5. Solve algebraically the equation

   $$\sin 2x^\circ + \sin x^\circ = 0, \quad 0 \le x < 360$$ *(5)*

TOTAL (20)