Linear Algebra Tutorial Sheet : Lines and Planes

1. (i) Give the general form of the equation of the plant π in $\mathbb{R}^3$ passing throughthe point $P_0 = (1, 0, 2)$ with the vector $n = (-5, 3, 2)$ as the normal.

   (ii) Show that the point $Q = (1, -1, 1)$ does not lie in the plane π and find its distance from π.

2. (i) Give the general form of the equation of the plant π in $\mathbb{R}^3$ passing through the point $P_0 = (1, 0, 2)$ with the vector $n = (-5, 5, 2)$ as the normal.

   (ii) Show that the point $Q = (1, -1, 1)$ does not lie in the plane π and find its distance from π.

3. (a) Find the general form of the equation of the plane π in $\mathbb{R}^3$ which passes through the point $P = (3, 1, 6)$ and is orthogonal to the vector $n = (1, 7, -2)$.

   (b) Show that the point $Q = (1, -1, 1)$ does not lie in the plane π and find its distance from π.