1. Given the curve with parametric equations $x = \cos t, y = \cos^2 t, \pi/2 \leq t \leq \pi$, eliminate the parameter to get a Cartesian equation and sketch the curve by indicating how it is traced.

![Parametric Curve](image)

2. Find an equation of the plane containing both the point $(1,2,3)$ and the line with parametric equations $x = 3t, y = 1 + t, z = 2 - t$.

\[
P = (1,2,3) \quad Q = (0,1,2) \quad R = (3,2,1)\\
\vec{n} = \vec{PQ} \times \vec{PR} = \begin{vmatrix}
\vec{i} & \vec{j} & \vec{k} \\
-1 & -1 & -1 \\
2 & 0 & -2
\end{vmatrix} = 2\vec{i} - 4\vec{j} + 2\vec{k}
\]

Equation: $2(x-1) - 4(y-2) + 2(z-3) = 0$

$\Rightarrow x - 2y + z = 0$