1. Find equation of plane containing (1, 2, 4) and parallel to the plane $3x - 2y + z = 9$.

2. Identify and give a rough sketch of the surface: $z = \sqrt{1 + x^2 + y^2}$.
1. Find parametric equations of line through \((2, 1, 0)\) and perpendicular to both \(i + j\) and \(j + k\).

2. Describe traces of the surface \(z = x^2 + y^2\) in coordinate planes and give a rough sketch of this surface.
1. Find equation of the plane that passes through \((1, 2, 3)\) and contains the line 
\[x = 3t, \quad y = 1 + t, \quad z = 2 - t.\]

2. Identify the surface and make a rough sketch:
\[z = (x + 2)^2 + (y - 5)^2 - 3.\]
1. Identify and sketch the quadratic surface: \(4z^2 = x^2 + 4y^2\).

2. Check whether the planes are perpendicular or parallel:

\[3x - y + 2z = 6, \ 6x - 2y + 4z = -4.\]

3. Change the rectangular coordinates \((-1, 1, \sqrt{6})\) to spherical coordinates.