(1) Find the equation of the plane through the point \((6, 3, 2)\) and perpendicular to the vector \((-2, 1, 5)\).

\[-2(x - 6) + y - 3 + 5(z - 2) = 0\]

(2) Find the equation of the plane that contains the points \((0, 1, 1), (1, 0, 1),\) and \((1, 1, 0)\).

\[x + y + z = 2\]

(3) Find the point at which the line \(x = y - 1 = 2z\) intersects the plane \(4x - y + 3z = 8\). Hint try to rewrite the symmetric equations into parametric equations by remembering setting the symmetric equations to \(t\).

\[(2, 3, 1)\]

(4) Find the angle between the planes \(x + y + z = 0\) and \(x + 2y + 3z = 1\).

\[\arccos\left(\frac{6}{\sqrt{42}}\right) \approx 0.387 \text{ rad}\]

(5) Are the following planes parallel, perpendicular or neither? If neither, find the angle between them.

(a) \(x + 4y - 3z = 1, \quad -3x + 6y + 7z = 0\) Perpendicular

(b) \(x + y + z = 1, \quad x - y + z = 1\) Neither. Angle is \(\arccos\left(\frac{1}{3}\right) \approx 1.231\)

(c) \(x = 4y - 2z, \quad 8y = 1 + 2x + 4z\) Parallel

(6) Find the distance between the planes: \(2x - 3y + z = 4\) and \(4x - 6y + 2z = 3\).

\[\frac{5}{2\sqrt{14}} \text{ units}\]

(7) Find the parametric equations for the line of intersection of the planes \(5x - 2y - 2z = 1\) and \(4x + y + z = 6\).

\[x = 1, \quad y = t, \quad z = 2 - t\]