

Worked example

The plane Π is perpendicular to the normal $\mathbf{n} = 2\mathbf{i} - \mathbf{j} + 3\mathbf{k}$ and passes through the point P with position vector $4\mathbf{i} - 8\mathbf{j} + 7\mathbf{k}$.

Find the Cartesian equation of Π .

Your turn

The plane Π is perpendicular to the normal $\mathbf{n} = 3\mathbf{i} - 2\mathbf{j} + \mathbf{k}$ and passes through the point P with position vector $8\mathbf{i} + 4\mathbf{j} - 7\mathbf{k}$.

Find the Cartesian equation of Π .

$$3x - 2y + z = 9$$

Worked example

Show that the points $(3, 2, 2)$, $(3, 5, 1)$, $(-1, 3, 4)$ and $(-1, 6, 3)$ are coplanar.

Your turn

Show that the points $(2, 2, 3)$, $(1, 5, 3)$, $(4, 3, -1)$ and $(3, 6, -1)$ are coplanar.

Shown

Worked example

Show that the points $(3, 2, 2)$, $(3, 5, 1)$, $(-1, 3, 4)$ and $(-1, 6, 4)$ are not coplanar.

Your turn

Show that the points $(2, 2, 3)$, $(1, 5, 3)$, $(4, 3, -1)$ and $(4, 6, -1)$ are coplanar.

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