

PARAMETRIC EQUATIONS OF PLANES - ANSWERS

For each problem below find parametric equations for the plane containing the point $P = (1, 2, 3)$ and the nonparallel vectors \vec{u} and \vec{v} .

1. $\vec{u} = 2\hat{i} + 3\hat{j}$ and $\vec{v} = 3\hat{i} - 2\hat{j}$

$$x = 1 + 2s + 3t$$

$$y = 2 + 3s - 2t$$

$$z = 3$$

2. $\vec{u} = 2\hat{i} + 3\hat{j}$ and $\vec{v} = -6\hat{i} + 9\hat{j}$

$$x = 1 + 2s - 6t$$

$$y = 2 + 3s + 9t$$

$$z = 3$$

3. $\vec{u} = 2\hat{i} + 3\hat{j} + \hat{k}$ and $\vec{v} = 3\hat{i} - 2\hat{j} + \hat{k}$

$$x = 1 + 2s + 3t$$

$$y = 2 + 3s - 2t$$

$$z = 3 + s + t$$

4. $\vec{u} = \hat{i} + \hat{j} - 5\hat{k}$ and $\vec{v} = 2\hat{i} + 2\hat{j} - 4\hat{k}$

$$x = 1 + s + 2t$$

$$y = 2 + s + 2t$$

$$z = 3 - 5s - 4t$$

5. $\vec{u} = -\hat{i} - \hat{j} - 5\hat{k}$ and $\vec{v} = 2\hat{i} + 2\hat{j} - 10\hat{k}$

$$x = 1 - s + 2t$$

$$y = 2 - s + 2t$$

$$z = 3 - 5s - 10t$$