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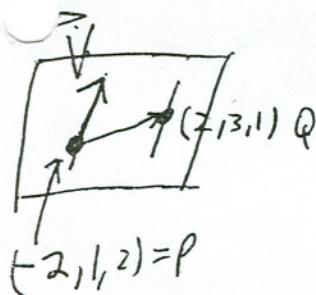
9. Find the equations of the line through $(4, 0, 6)$ and perpendicular to the plane $x - 5y + 2z = 10$.

We want the line through $(4, 0, 6)$ which is $\parallel$ to $\vec{i} - 5\vec{j} + 2\vec{k}$. It is

$$\begin{cases} x = 4 + t \\ y = -5t \\ z = 6 + 2t \end{cases}$$

10. Find the equation of the plane that contains the parallel lines

$$\begin{cases} x = -2 + 2t \\ y = 1 + 4t \\ z = 2 - t \end{cases} \quad \text{and} \quad \begin{cases} x = 2 - 2t \\ y = 3 - 4t \\ z = 1 + t \end{cases}$$



We want the plane through $(-2, 1, 2)$ $\perp$ to

$$\vec{n} \times \vec{PQ} = \begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ 2 & 4 & -1 \\ 4 & 2 & -1 \end{vmatrix} = -2\vec{i} - 2\vec{j} - 12\vec{k}$$

$$-2(x+2) - 2(y-1) - 12(z-2) = 0$$

$$(x+2) + (y-1) + 6(z-2) = 0$$

$$x + y + 6z = 11$$

Check This equation is satisfied by $(-2, 1, 2)$ and $(0, 5, 1)$ on the first line and $(2, 3, 1)$ and $(0, -1, 2)$ on the second line