

Solution (#534) Two independent vectors parallel to the plane $3x + 2y + z = 6$ are $(1, 0, -3)$ and $(0, 1, -2)$, and a point of the plane is $(0, 0, 6)$. So the plane can be parametrized as

$$\mathbf{r}(\lambda, \mu) = (0, 0, 6) + \lambda(1, 0, -3) + \mu(0, 1, -2).$$

We see then that

$$\begin{aligned} (2, 0, 0) &= (0, 0, 6) + 2(1, 0, -3) + 0(0, 1, -2), & \mathbf{r}(2, 0) &= (2, 0, 0) \\ (0, 3, 0) &= (0, 0, 6) + 0(1, 0, -3) + 3(0, 1, -2), & \mathbf{r}(0, 3) &= (0, 3, 0) \\ (0, 0, 6) &= (0, 0, 6) + 0(1, 0, -3) + 0(0, 1, -2), & \mathbf{r}(0, 0) &= (0, 0, 6) \end{aligned}$$