

If we first find two nonparallel vectors in the plane, their cross product will be a normal vector to the plane. Since the given line lies in the plane, its direction vector  $\mathbf{a} = \langle -4, 5, 4 \rangle$  is one vector in the plane. We can verify that the given point  $(6, 0, -1)$  does not lie on this line, so to find another nonparallel vector  $\mathbf{b}$  which lies in the plane, we can pick any point on the line and find a vector connecting the points. If we put  $t = 0$ , we see that  $(2, 1, 8)$  is on the line, so  $\mathbf{b} = \langle 6 - 2, 0 - 1, -1 - 8 \rangle = \langle 4, -1, -9 \rangle$  and  $\mathbf{n} = \mathbf{a} \times \mathbf{b} = \langle -45 + 4, 16 - 36, 4 - 20 \rangle = \langle -41, -20, -16 \rangle$ . Thus, an equation of the plane is  $-41(x - 6) - 20(y - 0) - 16[z - (-1)] = 0$  or  $-41x - 20y - 16z = -230$ .