

Since the direction vectors  $\langle 1, 3, 3 \rangle$  and  $\langle -3, -6, 6 \rangle$  are not scalar multiples of each other, the lines are not parallel, so we check to see if the lines intersect. The parametric equations of the lines are  $L_1: x = t, y = 1 + 3t, z = 2 + 3t$  and  $L_2: x = 3 - 3s, y = 10 - 6s, z = -1 + 6s$ . For the lines to intersect, we must be able to find one value of  $t$  and one value of  $s$  that produce the same point from the respective parametric equations. Thus we need to satisfy the following three equations:  $t = 3 - 3s, 1 + 3t = 10 - 6s, 2 + 3t = -1 + 6s$ . Solving the first two equations we get  $t = 3, s = 0$  and checking, we see that these values don't satisfy the third equation. Thus the lines aren't parallel and don't intersect, so they must be skew lines.