Consider the points

$P_1 = (-1, 3, 4)$ $P_2 = (2, -1, 3)$ $P_3 = (-2, -3, 5)$

$Q_1 = (2, 0, 3)$ $Q_2 = (4, 1, -2)$ $Q_3 = (5, 1, 6)$

1. Find an equation of the line through P_1 and P_2.
2. Find the equation of the plane that contains P_1, P_2, and P_3.
3. Find the equation of the plane that contains Q_1, Q_2, and Q_3.
4. Find where the line in #1 intersects the plane in #3.
5. Find the line of intersection of the planes in #2 and #3.