Show **ALL** work for credit; be neat. Calculators can be used for graphing and calculating only. Give exact answers when possible.

1. Find an equation of the plane passing through the three points $P(2,1,-3)$, $Q(5,-1,4)$ and $R(2,-2,4)$.

2. Find parameteric equations of the line $\ell$ through the points $P(-5,6,7)$ and $Q(-2,3,4)$ and find the point where the line $\ell$ intersects the plane $z = 1 - 2x + y$. 