A line, L, has equation $\dfrac{x+1}{2} = \dfrac{y-2}{1} = \dfrac{z}{-1}$.

(a) Find the Cartesian equation of the plane, perpendicular to the line L, which passes through the point P(1,1,0). **3**

(b) Find the shortest distance from P to L and explain why this is the shortest distance. **7**

Answers:

(a) $2x + y - z = 3$

(b)   PQ = $\sqrt{\dfrac{7}{2}}$, which is the shortest distance because PQ is perpendicular to L.