

Show all work. 5 points each.

1) Use the distance formula for \mathbb{R}^3 to show that the triangle with vertices $P(-2, 4, 0)$, $Q(1, 2, -1)$ and $R(-1, 1, 2)$ is an equilateral triangle.

2) Let $\mathbf{a} = \langle 3, -1 \rangle$ and $\mathbf{b} = \langle -2, 4 \rangle$:

i) find $|\mathbf{a}|$,

ii) find $\mathbf{a} - \mathbf{b}$ and draw \mathbf{a} , \mathbf{b} , and $\mathbf{a} - \mathbf{b}$.