

1. Let $P(2, 1, 0)$, $Q(2, 2, 1)$ and $R(0, 1, 2)$ be three points of the space.
 - (a) Let π be the plane they identify. Find a vector \mathbf{a} perpendicular to the plane π .

 - (b) Let $S(0, 1, 0)$ be another point in R^3 , find the volume of the parallelepiped given by the four points.

2. Give the equation of the sphere of radius 4 and center $C(0, 2, 1)$.

3. Let $3x^2 + 3y^2 + 3z^2 + 6x + 6y + 6z = 21$ be the equation of a sphere, find the radius and the center.