16) $p = (p_1, p_2, p_3)$

$$\boxed{U_p = \frac{p}{|p|}}$$

$$|p| = \sqrt{p_1^2 + p_2^2 + p_3^2}$$

$a = (a_1, a_2, a_3) \qquad b = (b_1, b_2, b_3) \qquad a \cdot b = (a_1 b_1 + a_2 b_2 + a_3 b_3)$

$$U_p \cdot i = \left(\frac{p_1}{|p|}, \frac{p_2}{|p|}, \frac{p_3}{|p|} \right) \cdot (1,0,0) = \frac{p_1}{|p|}$$

$$U_p \cdot j = \left(\frac{p_1}{|p|}, \frac{p_2}{|p|}, \frac{p_3}{|p|} \right) \cdot (0,1,0) = \frac{p_2}{|p|}$$

$$U_p \cdot k = \left(\frac{p_1}{|p|}, \frac{p_2}{|p|}, \frac{p_3}{|p|} \right) \cdot (0,0,1) = \frac{p_3}{|p|}$$

$$\boxed{p = |p| \cdot \cos \lambda}$$

$$\cos a_1 = \frac{p_1}{|p|} \qquad \cos a_2 = \frac{p_2}{|p|} \qquad \cos a_3 = \frac{p_3}{|p|}$$

$$\boxed{\cos^2_{a_1} + \cos^2_{a_2} + \cos^2_{a_3} = 1}$$

$$\left(\frac{p_1}{|p|} \right)^2 + \left(\frac{p_2}{|p|} \right)^2 + \left(\frac{p_3}{|p|} \right)^2 = 1 \qquad \frac{p_1^2 + p_2^2 + p_3^2}{(\sqrt{p_1^2 + p_2^2 + p_3^2})^2} = 1$$

$$\boxed{p = |p| (\cos a_1, \cos a_2, \cos a_3)}$$

$$P_1 = |p| \cdot \cos a_1 \qquad P_2 = |p| \cdot \cos a_2 \qquad P_3 = |p| \cdot \cos a_3$$

$$p = (p_1, p_2, p_3) = |p| (\cos a_1, \cos a_2, \cos a_3)$$