Question

1. Given the following vectors: $\vec{a} = <3, 5, -2>, \vec{b} = <2, -4, 1>$.

Determine the following:

(2 points) a. $3\vec{a} - 4\vec{b}$

(3 points) b. $\vec{a} \cdot \vec{b}$

(3 points) c. $proj_{\vec{a}}\vec{b}$

(4 points) d. $\vec{a} \times \vec{b}$

Question

(3 points) 2. Find the distance between $P(2, 3, -1)$ and $Q(5, 4, -6)$.

Question

(3 points) 3. Find the parametric form of the equation of the line that passes through $P(5, -4, 2)$ and $Q(3, 1, -4)$.

Question

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