

Full name:

1. Let $A = 4i + 2j + 3k$ and $B = -2i + 2j + k$. Find $A \times B$.

$$a_x = 4 \quad a_y = 2 \quad a_z = 3$$

$$b_x = -2 \quad b_y = 2 \quad b_z = 1$$

$$\begin{aligned}\vec{a} \times \vec{b} &= (a_y b_z - a_z b_y) \hat{i} + (a_z b_x - a_x b_z) \hat{j} + (a_x b_y - a_y b_x) \hat{k} \\ &= (2 \cdot 1 - 3 \cdot 2) \hat{i} + (3(-2) - 4 \cdot 1) \hat{j} + (4 \cdot 2 - 2 \cdot (-2)) \hat{k} \\ &= -4 \hat{i} - 10 \hat{j} + 12 \hat{k}\end{aligned}$$