QUESTION
Evaluate $\mathbf{a} \times \mathbf{b}$ where $\mathbf{a} = \mathbf{i} - 2\mathbf{j} + 2\mathbf{k}$ and $\mathbf{b} = \mathbf{i} + \mathbf{j} - 2\mathbf{k}$.

ANSWER

$$\mathbf{a} \times \mathbf{b} = \begin{vmatrix} \mathbf{i} & \mathbf{j} & \mathbf{k} \\ 1 & -2 & 2 \\ 1 & 1 & -2 \end{vmatrix} = (4 - 2, 2 - (-2), 1 - (-2)) = 2\mathbf{i} + 4\mathbf{j} + 3\mathbf{k}$$