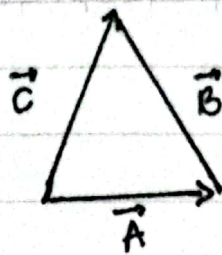


1).



$$\vec{A} + \vec{B} = \vec{C}$$

$$\vec{A} = \hat{i} + 2\hat{j} + 0\hat{k}$$

$$\vec{B} = -\hat{i} - 2\hat{j} + 3\hat{k}$$

$$\bullet \vec{A} + \vec{B} = \vec{C}$$

$$\bullet \vec{C} = 0\hat{i} + 0\hat{j} + 3\hat{k}$$

Sudut $\vec{A} \vec{B}$

$$\vec{A} \cdot \vec{B} = (\hat{i} + 2\hat{j} + 0\hat{k}) \cdot (-\hat{i} - 2\hat{j} + 3\hat{k})$$

$$= -1 - 4 + 0 = -5$$

$$|\vec{A}| = \sqrt{1^2 + 2^2 + 0^2}$$

$$= \sqrt{5}$$

$$|\vec{B}| = \sqrt{(-1)^2 + (-2)^2 + (3)^2}$$

$$= \sqrt{1 + 4 + 9}$$

$$= \sqrt{14}$$

$$\vec{A} \cdot \vec{B} = |\vec{A}| |\vec{B}| \cos \theta$$

$$-5 = \sqrt{5} \sqrt{14} \cos \theta$$

$$\theta = \arccos \frac{-5}{\sqrt{5} \sqrt{14}}$$

$$2). \vec{A} = 2x\vec{i} + 3x^2\vec{j} + 4xy\vec{k}$$

$$\vec{B} = xy\vec{i} + 2x\vec{j} + 5x^2\vec{k}$$

$$\vec{A} \times \vec{B} =$$

$$\vec{A} \times \vec{B}$$

$$\begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ 2x & 3x^2 & 4xy \\ xy & 2x & 3x^2 \end{vmatrix} = \vec{i}(9x^3 - 8x^2y) - \vec{j}(6x^2 - 4x^2y) - \vec{k}(3x^2y - 4x^2)$$

3). Hitung divergensi vektor berikut

a). $V_1 = x^2\vec{i} + 3xz^2\vec{j} - 2xz\vec{k}$

b). $V_2 = xy\vec{i} + 2yz\vec{j} + 3xz\vec{k}$

c). $V_3 = y^2\vec{i} + (2xy + z^2)\vec{j} - 2yz\vec{k}$

Jawab

a). $\nabla \cdot V_1 = 2x + 0 - 2x$

b). $\nabla \cdot V_2 = y + 2z + 3x$

c). $\nabla \cdot V_3 = 0 + (2x + 2z) - 2y$