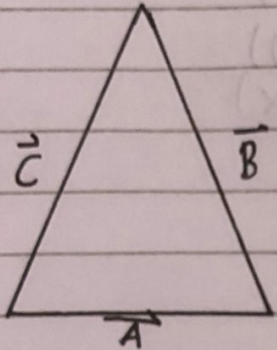


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Soal 1.



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

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

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

Hitung vektor $\vec{C}$

Hitung sudut $\vec{A}\vec{B}$

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

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

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

$$= -\hat{i} - 4\hat{j} + 0\hat{k} = -5$$

$$|\vec{A}| = \sqrt{1 + 4 + 0}$$

$$|\vec{B}| = \sqrt{1 + 4 + 9}$$

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

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

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

Soal 2.

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

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

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

Soal 2.

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

Soal 3.

Hitung divergensi vektor berikut

a) $\vec{V}_1 = x^2 \hat{i} + 3z^2 \hat{j} - 2xz \hat{k}$

b) $\vec{V}_2 = xy \hat{i} + 2yz \hat{j} + 3xz \hat{k}$

c) $\vec{V}_3 = y^2 \hat{i} + (2xy + z^2) \hat{j} - 2yz \hat{k}$

Jawab :

$$\nabla \cdot \vec{V}_1 = 2x + 0 - 2x$$

$$\nabla \cdot \vec{V}_2 = y + 2z + 3x$$

$$\nabla \cdot \vec{V}_3 = 0 + (2x + z^2) - 2y$$