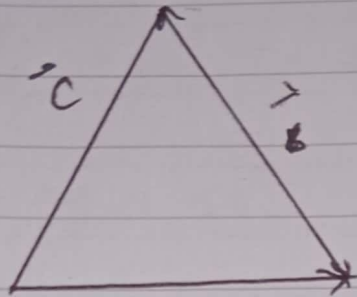


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Soal. 1 (doE)



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

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

$$\begin{aligned} a.) \quad \vec{A} + \vec{B} &= \vec{C} \\ \vec{C} &= 0\vec{i} + 0\vec{j} + 3\vec{k} \end{aligned}$$

$$\begin{aligned} b.) \quad \vec{A} \cdot \vec{B} &= (\vec{i} + 2\vec{j} + 0\vec{k}) \cdot (-\vec{i} - 2\vec{j} + 3\vec{k}) \\ &= -1 - 4 \\ &= -5 \end{aligned}$$

$$-5 = |\vec{A}| \cdot |\vec{B}| \cos \theta$$

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

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

Soal 2 (Cross)

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

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

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

$$= \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ 2x & 3x^2 & 4xy \\ xy & 2x & 3x \end{vmatrix}$$

$$= \hat{i} (9x^3 - 8x^2y) - \hat{j} (6x^2 - 4x^2y^2) - \hat{k} (3x^3y - 4x^2)$$

## Soal 5 (Nakla)

Hitunglah Divergensi Vektor

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

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

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

Jawab :

$$\begin{aligned} \nabla \cdot V_1 &= 2x \hat{i} + 6z \hat{j} \\ &= 2x + 6z \end{aligned}$$

$$a.) \nabla \cdot V_1 = 2x \hat{i} + 0 \hat{j} - 2x$$

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

$$\begin{aligned} c.) \nabla \cdot V_3 &= 0 \hat{i} + (2x) \hat{j} - 2y \\ &= 0 \hat{i} + 2x - 2y \end{aligned}$$