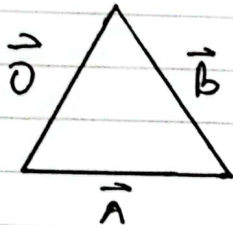


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Soal 1



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

Pertanyaan

- Hitung vektor $\vec{C}$
- Hitung vektor $\vec{AB}$

Jawaban

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

$$b) \vec{AB} = (\hat{i} + 2\hat{j} + 0\hat{k}) \cdot (-\hat{i} - 2\hat{j} + 3\hat{k})$$
$$= (-1\hat{i} - 4\hat{j} + 0\hat{k}) = -5$$

$$|\vec{A}| = \sqrt{1 + 4 + 0} = \sqrt{5}$$
$$|\vec{B}| = \sqrt{1 + 4 + 9} = \sqrt{14}$$

$$|\vec{A}| |\vec{B}| = \sqrt{5} \cdot \sqrt{14} \cos \theta$$
$$\theta = \arccos \frac{-5}{\sqrt{5} \sqrt{14}}$$

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

perkalian

$\vec{A} \cdot \vec{B}$

jawaban

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

$= (9x^3 + 0x^2y)\hat{i} - (4x^2y^2 + 6x^2)\hat{j} - (4x^2 + 3x^3y)\hat{k}$

③ Hitung dikurusi vektor berikut

a) $u_1 = x^2\hat{i} + 3xz^2\hat{j} - 2xz\hat{k}$

b) $u_2 = xy\hat{i} + 2yz\hat{j} + 3xz\hat{k}$

c) $u_3 = y^2\hat{i} + (2xz + z^2)\hat{j} - 2yz\hat{k}$

jawaban

a) $\nabla u_1 = 2x + 0j - 2z$

b) $\nabla u_2 = y + 2z + 3x$

c) $\nabla u_3 = 0i + (2x + z^2) - 2y$