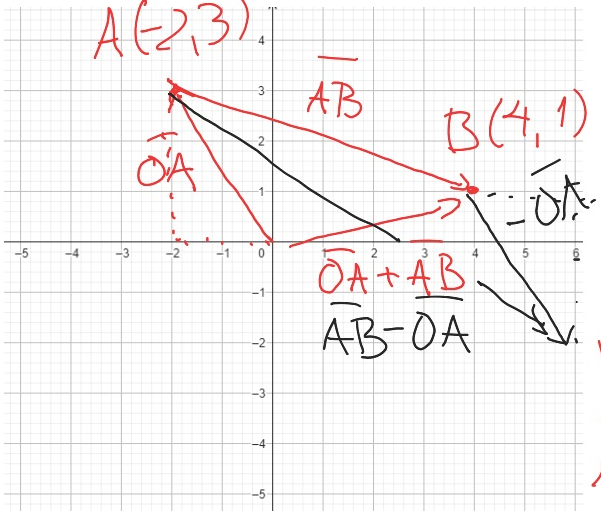
Vektorit



Paikkavektori

$\overline{OA} = -2\bar{i} + 3\bar{j}$

$\overline{AB} = (4+2)\bar{i} + (1-3)\bar{j} = 6\bar{i} - 2\bar{j}$

Vektorin $\overline{AB}$ pituus $|\overline{AB}| = \sqrt{6^2 + (-2)^2} = \sqrt{40} = 2\sqrt{10}$

Vektorin $\overline{AB}$ yksikkövektori $\overline{AB}^0$

$$\overline{AB}^0 = \frac{\overline{AB}}{|\overline{AB}|} = \frac{6\bar{i} - 2\bar{j}}{2\sqrt{10}} = \frac{3}{\sqrt{10}}\bar{i} - \frac{1}{\sqrt{10}}\bar{j}$$

$\overline{OA} + \overline{AB} = 2\bar{i} + 3\bar{j} + 6\bar{i} - 2\bar{j} = 4\bar{i} + \bar{j}$

$\overline{AB} - \overline{OA} = 6\bar{i} - 2\bar{j} - (-2\bar{i} + 3\bar{j}) = 8\bar{i} - 5\bar{j}$

18.15 Laske vektorin $\frac{1}{3}\bar{u} - 5\bar{v}$ pituus, kun $\bar{u} = 6\bar{i} - 12\bar{j}$ ja $\bar{v} = -\bar{i} + 4\bar{j}$.

$$\frac{1}{3}(6\bar{i} - 12\bar{j}) - 5(-\bar{i} + 4\bar{j}) =$$

$$2\bar{i} - 4\bar{j} + 5\bar{i} - 20\bar{j} =$$

$$7\bar{i} - 24\bar{j}$$

$$\left|\frac{1}{3}\bar{u} - 5\bar{v}\right| = \sqrt{7^2 + (-24)^2} = \ldots$$