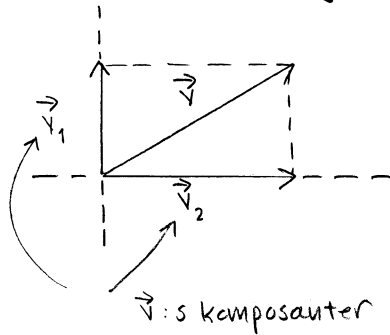


Mer om vektorer - komponenter, koordinater och vektorlängd

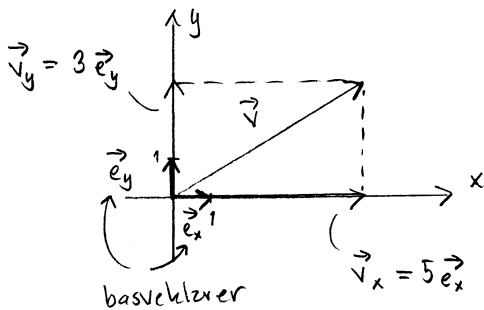
Komponentuppdelning



$$\vec{v} = \vec{v}_1 + \vec{v}_2$$

\vec{v} : s komponenter

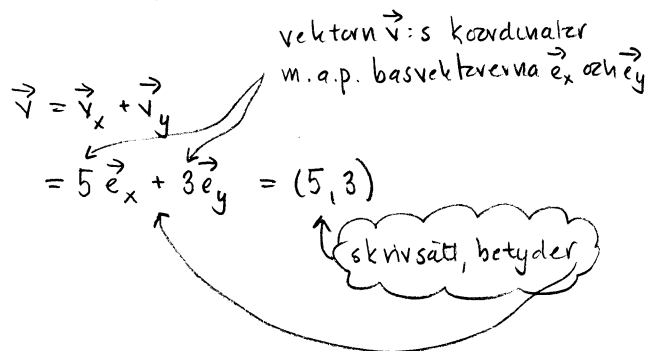
Basvektorer och koordinater



basvektorer

$$\vec{v}_x = 5\vec{e}_x$$

$$\vec{v}_y = 3\vec{e}_y$$



vektorn \vec{v} : s koordinater m. a. p. basvektorerna \vec{e}_x och \vec{e}_y

$$\vec{v} = \vec{v}_x + \vec{v}_y$$

$$= 5\vec{e}_x + 3\vec{e}_y = (5, 3)$$

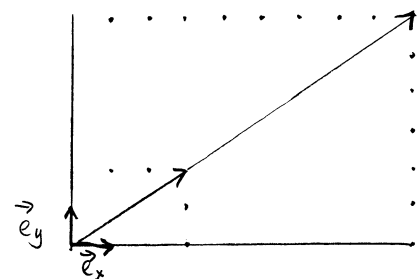
skrivsätt, betyder

Räknelagar för vektorer

Multiplikation med skalär (tal)

$$k(x_1, y_1) = (kx_1, ky_1)$$

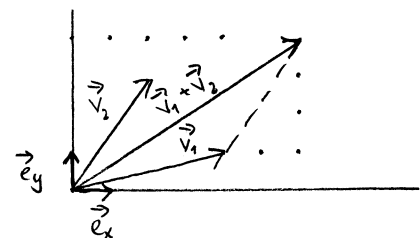
$$\text{Ex: } 3(3, 2) = (3 \cdot 3, 3 \cdot 2) = (9, 6)$$



Addition

$$(x_1, y_1) + (x_2, y_2) = (x_1 + x_2, y_1 + y_2)$$

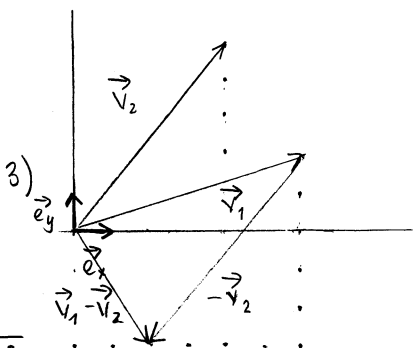
$$\text{Ex: } (4, 1) + (2, 3) = (4 + 2, 1 + 3) = (6, 4)$$



Subtraktion

$$(x_1, y_1) - (x_2, y_2) = (x_1 - x_2, y_1 - y_2)$$

$$\text{Ex: } (6, 2) - (4, 5) = (6 - 4, 2 - 5) = (2, -3)$$



Vektorlängd

$$\vec{v} = (a, b) \text{ har längden } |\vec{v}| = \sqrt{a^2 + b^2}$$

absolutbeloppet