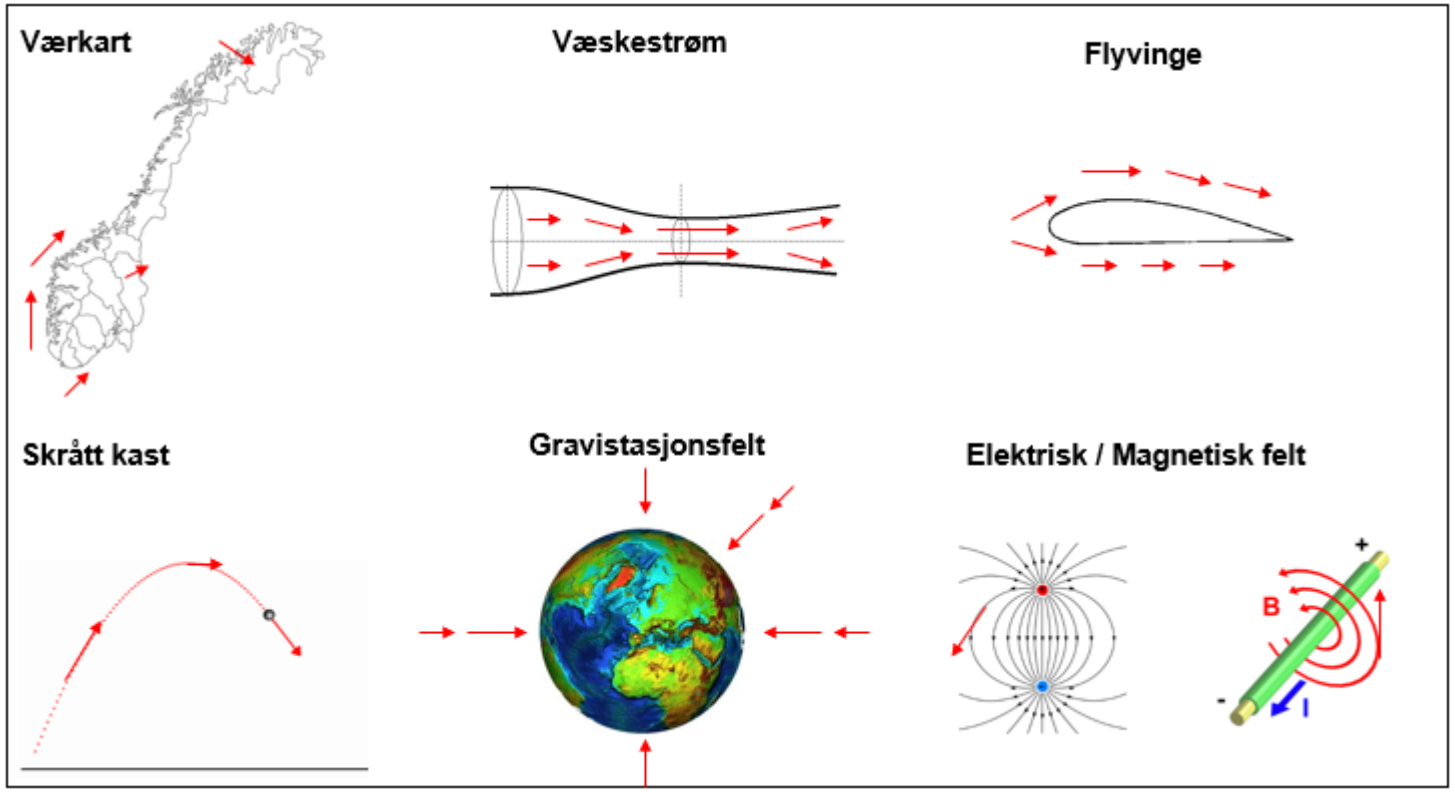
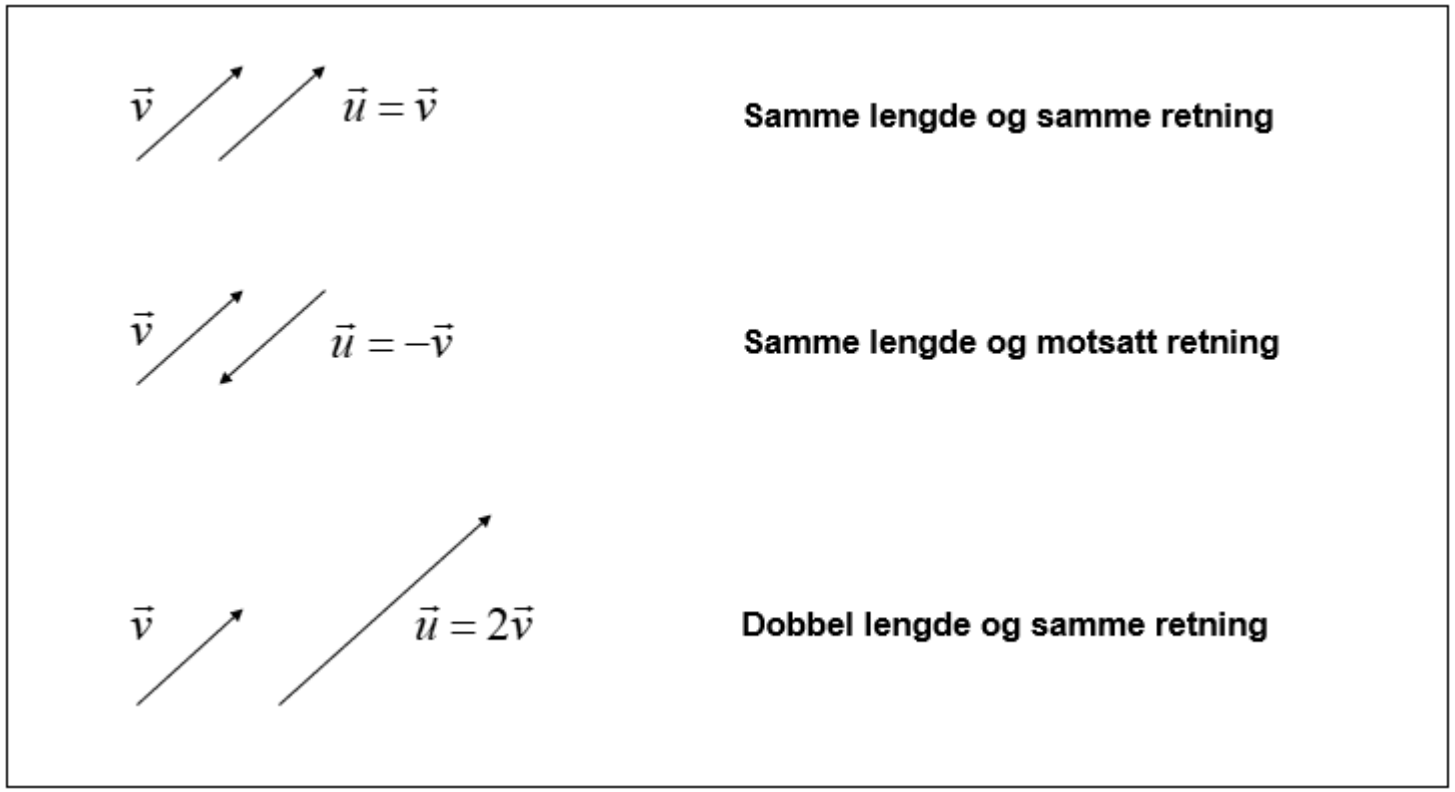
Vektor

En vektor er et objekt som er karakterisert ved en lengde og en retning



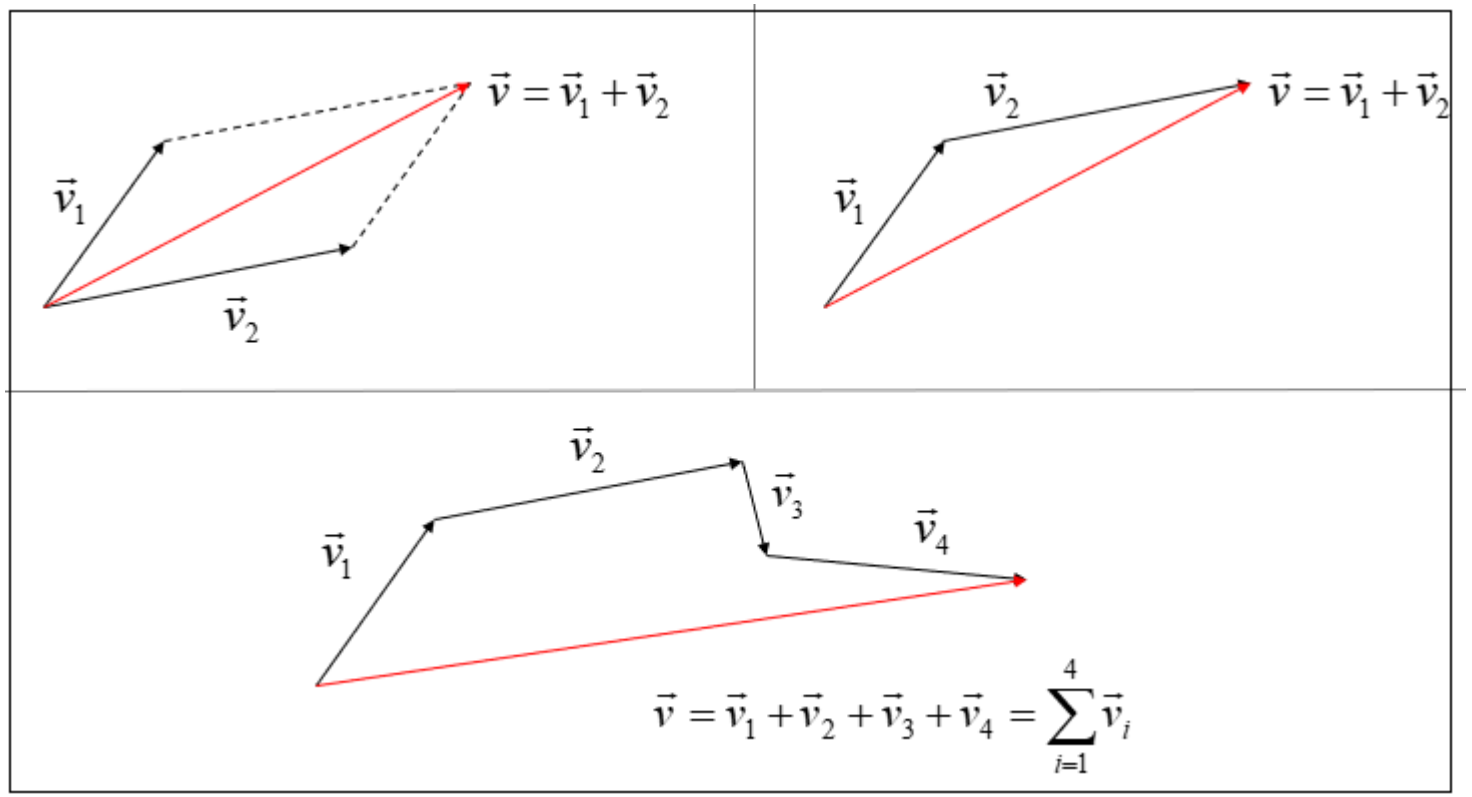
Vektor

Likhet og multiplikasjon med skalar



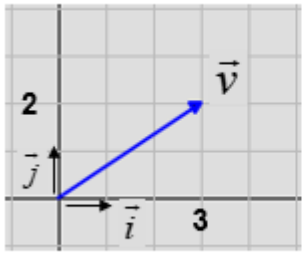
Vektor

Addisjon



Vektor

Notasjon



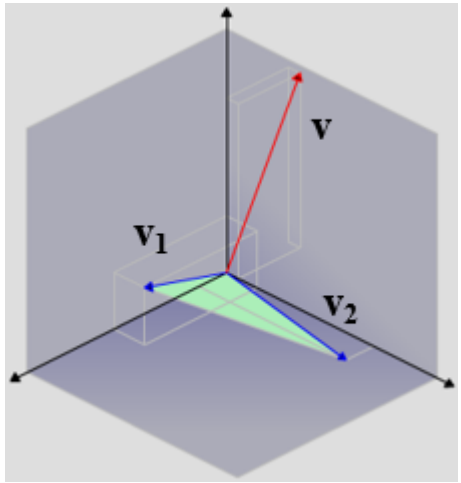
$$\vec{v} = 3\vec{i} + 2\vec{j}$$
$$= [3,2]$$
$$= \begin{bmatrix} 3 \\ 2 \end{bmatrix}$$

Skalarprodukt

$$c = \vec{v}_1 \cdot \vec{v}_2 = |\vec{v}_1| \cdot |\vec{v}_2| \cdot \cos\alpha$$
$$c = \vec{v}_1 \cdot \vec{v}_2 = [v_{1x}, v_{1y}, v_{1z}] \cdot [v_{2x}, v_{2y}, v_{2z}] = v_{1x} \cdot v_{2x} + v_{1y} \cdot v_{2y} + v_{1z} \cdot v_{2z}$$

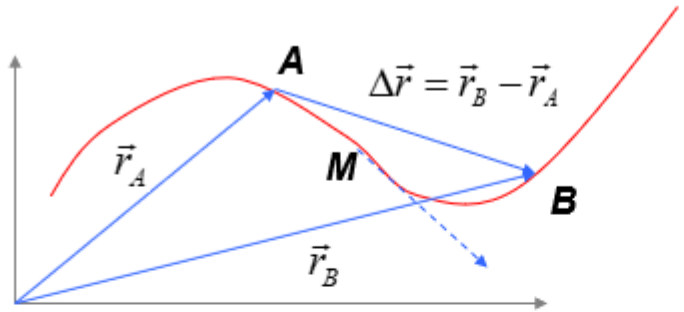
Kryssprodukt

$$|v| = |\vec{v}_1 \times \vec{v}_2| = |\vec{v}_1| \cdot |\vec{v}_2| \cdot \sin\alpha$$
$$[\vec{v}] = \vec{v}_1 \times \vec{v}_2 = [v_{1x}, v_{1y}, v_{1z}] \times [v_{2x}, v_{2y}, v_{2z}]$$
$$= [v_{1y}v_{2z} - v_{1z}v_{2y}, v_{1z}v_{2x} - v_{1x}v_{2z}, v_{1x}v_{2y} - v_{1y}v_{2x}]$$



Vektor

Derivasjon



Gjennomsnittshastighet på strekningen *A*-*B*: $\vec{v} = \dfrac{\Delta\vec{r}}{\Delta t}$

Hastighet (momentanhastighet) i *M*: $\vec{v} = \lim\limits_{\Delta t \to 0} \dfrac{\Delta\vec{r}}{\Delta t} = \dfrac{d\vec{r}}{dt} = \dot{\vec{r}}$