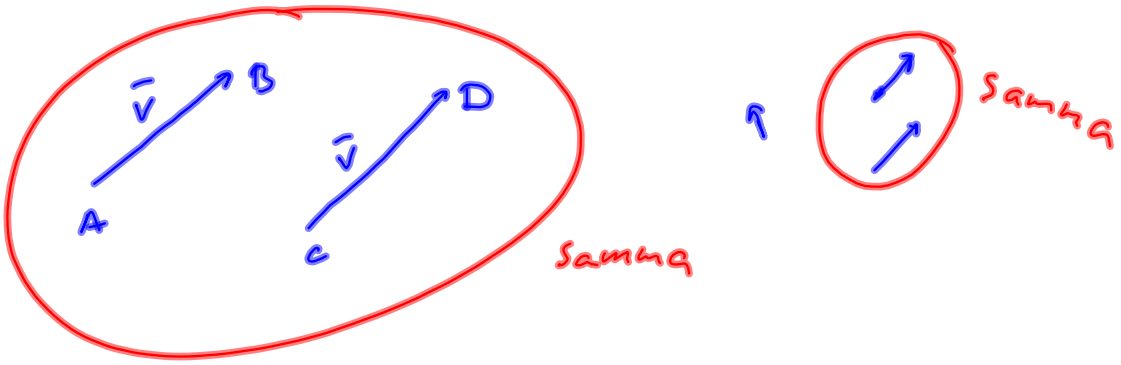
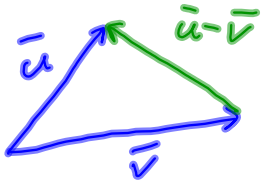
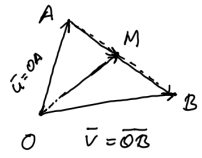


Subtraktion mellan vektorer



$\bar{v}+(\bar{u}-\bar{v}) = \bar{v}+\bar{u}-\bar{v} = \bar{u}$

Eksempel:

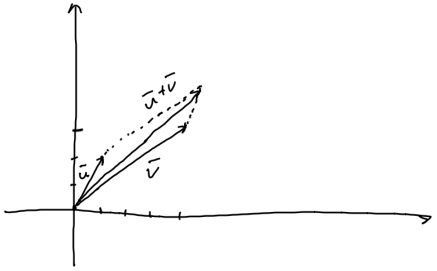


$$\overline{OM} = \overline{OA} + \overline{AM} = \overline{OA} + \frac{1}{2}\overline{AB}$$

$$= \bar{u} + \frac{1}{2}(\bar{v} - \bar{u}) = \bar{u} + \frac{1}{2}\bar{v} - \frac{1}{2}\bar{u}$$

$$= \frac{1}{2}\bar{u} + \frac{1}{2}\bar{v} = \frac{1}{2}(\bar{u} + \bar{v})$$

$$\bar{u} = \begin{bmatrix} 1 \\ 2 \end{bmatrix} \qquad \bar{v} = \begin{bmatrix} 4 \\ 3 \end{bmatrix}$$



$$\bar{u} + \bar{v} = \begin{bmatrix} 1 \\ 2 \end{bmatrix} + \begin{bmatrix} 4 \\ 3 \end{bmatrix} = \begin{bmatrix} 1+4 \\ 2+3 \end{bmatrix} = \begin{bmatrix} 5 \\ 5 \end{bmatrix}$$

- $$2\bar{u} + 3\bar{v} = 2 \cdot \begin{bmatrix} 1 \\ 2 \end{bmatrix} + 3\begin{bmatrix} 4 \\ 3 \end{bmatrix} = \begin{bmatrix} 2 \\ 4 \end{bmatrix} + \begin{bmatrix} 12 \\ 9 \end{bmatrix}$$
$$= \begin{bmatrix} 14 \\ 13 \end{bmatrix}$$

- $$|\bar{v}| = \|\bar{v}\| = \left\| \begin{bmatrix} 4 \\ 3 \end{bmatrix} \right\| = \sqrt{4^2 + 3^2}$$
$$= \sqrt{16+9} = \sqrt{25} = 5$$
$$\bar{v} = \begin{bmatrix} v_1 \\ v_2 \end{bmatrix} \qquad \|\bar{v}\| = |\bar{v}| = \sqrt{v_1^2 + v_2^2}$$

Enhetsvektor med retning $\bar{v}$

$$\bar{v} = \begin{bmatrix} 4 \\ 3 \end{bmatrix}$$

$$e_{\bar{v}} = \frac{1}{|\bar{v}|}\bar{v} = \frac{1}{5}\begin{bmatrix} 4 \\ 3 \end{bmatrix} = \begin{bmatrix} 4/5 \\ 3/5 \end{bmatrix}$$