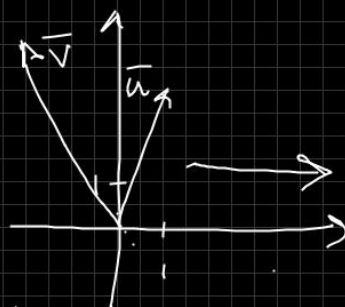


L7 - L8

$$\vec{u} = (1, 3)$$

$$\vec{v} = (-2, 4)$$



$$a) \vec{w}_1 = \vec{u} + \vec{v} = (1 + (-2), 3 + 4) = (-1, 7)$$

$$b) \vec{w}_2 = \vec{u} - \vec{v} = \vec{u} + (-\vec{v}) = (1 + 2, 3 + (-4)) = (3, -1)$$

$$c) 3\vec{v} = 3 \cdot (-2, 4) = (-6, 12)$$

$$d) 2\vec{u} + 3\vec{v} = 2(1, 3) + 3(-2, 4) \\ = (2, 6) + (-6, 12) = (-4, 18)$$

→ samma

riktning som \vec{v} | 4 \vec{v}

$\parallel \vec{v}$

1335

Vektorer upps (L7)

1400

Enkät: Pöstämnden

Via classroom

Skalarprodukt

(L8)

$$\vec{u} \cdot \vec{v} =$$

$$-5 \cdot \begin{cases} 5x + 3y = 7 \\ 3x + 15y = 2 \end{cases}$$

$$\begin{cases} -25x - 15y = -35 \\ 3x + 15y = 2 \end{cases}$$

$$\begin{cases} -25x - 15y = -35 \\ -22x + 0 = -33 \end{cases}$$

$$\begin{bmatrix} 5 & 3 & 7 \\ 3 & 15 & 2 \end{bmatrix}$$

$$y = -\frac{1}{6}$$

$$x = \frac{3}{2}$$

$\bar{A}^{-1} \begin{bmatrix} 5 & 3 \\ 3 & 15 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 7 \\ 2 \end{bmatrix}$

$\underbrace{\begin{bmatrix} 5 & 3 \\ 3 & 15 \end{bmatrix}}_A \underbrace{\begin{bmatrix} x \\ y \end{bmatrix}}_F = \begin{bmatrix} 7 \\ 2 \end{bmatrix}$

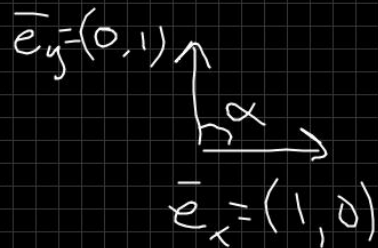
L8 Skalärprodukt

$$\vec{u} \cdot \vec{v} = |\vec{u}| \cdot |\vec{v}| \cdot \cos \theta$$

$$\cos \alpha = \cos 40^\circ = 0$$

$$|\vec{e}_y| = 1$$

$$|\vec{e}_x| = 1$$



$$\underbrace{\vec{e}_x}_{n \times k} \cdot \underbrace{\vec{e}_y}_{n \times k} = (1 \ 0) \begin{pmatrix} 0 \\ 1 \end{pmatrix} = 1 \cdot 0 + 0 \cdot 1 = 0$$

$$\vec{u} = (1, 3)$$

$$\vec{v} = (-2, 4)$$

$$\vec{u} \cdot \vec{v} = (1 \ 3) \begin{pmatrix} -2 \\ 4 \end{pmatrix} = 1 \cdot (-2) + 3 \cdot 4 = 10$$

$$\vec{e}_x = (1, 0)$$

$$\vec{e}_y = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$\vec{e}_y^T = (0, 1)$$

$$W = \vec{F}_s \cdot \vec{s}$$

$$= F \cdot \cos \theta \cdot s$$

