

# Lineære transformationer i A& D

## 1. lektion

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3.9.2010

# Matrixregning

Regler for addition og multiplikation med skalar

- 1  $A + B = B + A$
- 2  $(A + B) + C = A + (B + C)$
- 3  $A + O = A$
- 4  $A + (-A) = O$
- 5  $(st)A = s(tA)$
- 6  $s(A + B) = sA + sB$
- 7  $(s + t)A = sA + tA$



# Matrixregning

Regler for transposition

- 1  $(A + B)^T = A^T + B^T$
- 2  $(sA)^T = sA^T$
- 3  $(A^T)^T = A$



- 1  $\mathbf{u} \cdot \mathbf{u} = \|\mathbf{u}\|^2$
- 2  $\mathbf{u} \cdot \mathbf{u} = 0 \Leftrightarrow \mathbf{u} = \mathbf{0}$
- 3  $\mathbf{u} \cdot \mathbf{v} = \mathbf{v} \cdot \mathbf{u}$
- 4  $\mathbf{u} \cdot (\mathbf{v} + \mathbf{w}) = \mathbf{u} \cdot \mathbf{v} + \mathbf{u} \cdot \mathbf{w}$
- 5  $(c\mathbf{u}) \cdot \mathbf{v} = c(\mathbf{u} \cdot \mathbf{v}) = \mathbf{u} \cdot (c\mathbf{v})$
- 6  $\|c\mathbf{u}\| = |c| \|\mathbf{u}\|$
- 7  $\mathbf{u} \cdot \mathbf{v} = \|\mathbf{u}\| \|\mathbf{v}\| \cos \alpha$

