1 Lineare Algebra

1.1 Kern und Bild

Bla Bla

1.2 Determinante

$$det \begin{pmatrix} a & b \\ c & d \end{pmatrix} = ad - bc$$

2x2 Matrix

$$det \begin{pmatrix} a & b & c \\ d & e & f \\ g & h & i \end{pmatrix} = aei + bfg + cdh - gec - hfa - ibd$$

3x3 Matrix

1.3 Eigenwerte und Eigenvektoren

1.3.1 Charakteristisches Polynom berechnen

$$
\begin{aligned}
p_A(\lambda) &= det(A - \lambda E) \\
&= \begin{pmatrix}
a_{11} - \lambda & a_{12} & \cdots & a_{1n} \\
a_{21} & a_{22} - \lambda & \cdots & a_{2n} \\
\vdots & \vdots & \ddots & \vdots \\
a_{n1} & a_{n2} & \cdots & a_{nn} - \lambda
\end{pmatrix}
\end{aligned}
\tag{1}
$$

1.4 Gram-Schmidt-Verfahren

1.5 Diagonalisierbarkeit

1.6 Singulärwertzerlegung

1.7 Pseudo-Inverse

The well known Pythagorean theorem $x^2 + y^2 = z^2$ was proved to be invalid for other exponents. Meaning the next equation has no integer solutions:

$$x^n + y^n = z^n$$