

Brandenburg Technical University Cottbus

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**Problem Session to the Course: Mathematics I**  
**Environmental and Resource Management WS 2002/03**  
**Solutions to Sheet No. 13 (Deadline: January, 27/28 2002)**

**Homework**

H 13.1: Eigenvalues of  $A$ :  $\lambda_1 = -1$ ,

$$\lambda_1 = 1, \quad \lambda_{2/3} = \pm 2i$$

Eigenvectors:

$$A = \begin{pmatrix} 1 & 1 & 1 \\ 0 & 1-2i & 1 \\ 0 & 0 & 1-2i \end{pmatrix}$$

$$B^{-1+}$$

$$\begin{pmatrix} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{pmatrix} = \begin{pmatrix} \cos \frac{\pi}{4} & -\sin \frac{\pi}{4} & 0 \\ \sin \frac{\pi}{4} & \cos \frac{\pi}{4} & 0 \\ 0 & 0 & 1 \end{pmatrix}$$