

# Matrix Algebra

## Lesson 4

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### Problem 4.1

**a**

$$\det(A) = 5$$

**b**

$$\begin{bmatrix} 5 & 1 \end{bmatrix}$$

**c**

$$\lambda_1 \lambda_2 = \det(A)$$

**d**

*p.d*

**e**

$$\begin{bmatrix} .7071 & -.7071 \\ .7071 & .7071 \end{bmatrix}$$

**f**

$$A = 5 \begin{bmatrix} .7071 \\ .7071 \end{bmatrix} \begin{bmatrix} .7071 & .7071 \end{bmatrix} + 1 \begin{bmatrix} -.7071 \\ .7071 \end{bmatrix} \begin{bmatrix} -.7071 & .7071 \end{bmatrix}$$

### Problem 4.2

**a**

*p.d*

**b**

$$A = 1.4 \begin{bmatrix} .57735 \\ .57735 \\ .57735 \end{bmatrix} \begin{bmatrix} .57735 & .57735 & .57735 \end{bmatrix} + .8 \begin{bmatrix} .66057 \\ .08532 \\ -.74590 \end{bmatrix} \begin{bmatrix} .66057 & .08532 & -.74590 \end{bmatrix} + .8 \begin{bmatrix} .47991 \\ -.81203 \\ .33212 \end{bmatrix} \begin{bmatrix} .47991 & -.81203 & .33212 \end{bmatrix}$$