

1. Determine a matrix A such that for any $v \in \mathbb{R}^2$, Av is the reflection of v around the line $y = -x$.
2. This is a modification of problem 7.14 in the text, which you should read first.

The vector $g = (0.1, 0.4, 0.5, 0.2)$.

The vector r gives rainfall amounts per day in inches. So $r = (1, 0, 0, 1)$ is one inch of rain on day 1, no rain for the next two days, and one inch of rain on day 4.

The vector $h = g * r$ indicates river height above normal in inches per day, starting with the same day as r .

- a) Suppose $r = (1, 0, 0, 0, 0, 0)$. Compute $h = g * r$.
- b) Suppose $r = (0, 1, 0, 0, 0, 0)$. Compute $h = g * r$.
- c) Suppose $r = (0, 2, 0, 0, 0, 0)$. Compute $h = g * r$.
- d) Suppose $r = (1, 1, 0, 0, 0, 0)$. Compute $h = g * r$.
- e) Suppose $r = (1, 2, 0, 0, 0, 0)$. Compute $h = g * r$.
- f) Suppose $r = (0, 0, 0, 0, 0, 1)$. Compute $h = g * r$.
- g) Suppose $r = (1, 0, 0, 0, 0, 1)$. Compute $h = g * r$.
- h) Now finish problem 7.14.