

Worksheet 3

Problem 1: FP Associativity

Come up with an example in base-10 floating point with three-digit significands where addition is not associative, i.e. does not satisfy

$$(a + b) + c = a + (b + c).$$

Problem 2: Solve a linear system

Solve

$$\begin{pmatrix} 2 & 3 \\ 4 & 9 \end{pmatrix} \mathbf{x} = \begin{pmatrix} 6 \\ 15 \end{pmatrix}$$

for \mathbf{x} .

Problem 3: Condition number

- (a) Give an example of a matrix with only large entries that has a small condition number.
- (b) Give an example of a matrix with only small entries that has a large condition number.