

## Exercise 11

29.11.2022

## #1 Analytic Hierarchy Process (AHP)

Consider a DM who is using AHP to help her choose a phone. She considers three alternative phones (A, B, and C) with respect to three criteria (price, features, and memory). The pairwise comparison matrices are:

	Price		
	A	B	C
A	1	4	2
B	$\frac{1}{4}$	1	$\frac{1}{2}$
C	$\frac{1}{2}$	2	1

	Features		
	A	B	C
A	1	$\frac{1}{6}$	$\frac{1}{2}$
B	6	1	4
C	2	$\frac{1}{4}$	1

	Memory		
	A	B	C
A	1	$\frac{1}{9}$	$\frac{1}{2}$
B	9	1	4
C	2	$\frac{1}{4}$	1

	Price	Features	Memory
Price	1	3	5
Features	$\frac{1}{3}$	1	2
Memory	$\frac{1}{5}$	$\frac{1}{2}$	1

- Compute the local priority vectors.
- Compute the consistency indices of the pairwise comparison matrices. Are the DM's preferences consistent?
- Compute the total priorities for the three phones. Which phone would you suggest?
- How do the results change if a replica of A is added to the group of alternatives?