**Problem Statement 1:**

Write a function so that the columns of the output matrix are powers of the input

vector.

The order of the powers is determined by the increasing boolean argument. Specifically,

when increasing is False, the i-th output column is the input vector raised element-wise

to the power of N - i - 1.

HINT: Such a matrix with a geometric progression in each row is named for Alexandre-

Theophile Vandermonde.

**Code:**

import numpy as np

x = np.array([1, 2, 3,4,5,6])

np.vander(x)

np.vander(x, increasing=False)

print(np.vander(x, increasing=False))

**Output:**

[[ 1 1 1 1 1 1]

[ 32 16 8 4 2 1]

[ 243 81 27 9 3 1]

[1024 256 64 16 4 1]

[3125 625 125 25 5 1]

[7776 1296 216 36 6 1]]