Task 05 – Floating-point and Random

a) Define the following vector: vec = [1.0, 1.0e16, -1.0e16, -0.5]

Calculate the sum of this vector in three different ways:

1 - use for loop

2 – use the function sum from some library (for example gsl library has the function gsl_vector_sum)

3 – use the kahan summation algorithm (https://en.wikipedia.org/wiki/Kahan_summation_algorithm)

Are the three results the same? If not, can you guess why?

b) Rewrite the daxpy algorithms to fill the vectors x and y with a gaussian random variable with mean zero and standard deviation 1.

How can you test that d, the sum of x and y, is correct?