Exercise 1. Write code to uses a Python function to evaluate the following mathematical series

$$\sinh(x) \approx \sum_{k=0}^{K} \underbrace{\left[\frac{x^{2k+1}}{(2k+1)!} \right]}_{f_k(x)} = g(x; K)$$

$$\text{arcsinh}(x) \approx \sum_{k=0}^{K} \underbrace{\left[\frac{(-1)^k (2k)! x^{2k+1}}{2^{2k} (k!)^2 (2k+1)} \right]}_{f_k(x)} = g(x; K)$$

The Python functions must have the following features:

1. Two inputs, the value x of the independent variable and the number K of terms in the series;

2. One output, the resulting sum $g(x; K)$.

Complete the assignment by writing code that sequentially calls each of the Python functions using a number of terms $K \in \{0, 2, 4, 8, 16, 32, 64\}$. Use a value of the independent variable x of your choice.

Discuss the accuracy of approximations (e.g., $|\sinh(x) - g(x; K)|$). For the task use these two lists

- A list K_list of values $K \in \{0, 2, 4, 8, 16, 32, 64\}$

- A list g_list of corresponding sums $g(x; K)$