Python for Data Science
Exercises: Week One

Problem 1:

Write a program that asks the user to input a number x. It then prints out the value $\frac{2^x + 1}{x^2 + 5}$.

For example, if the user input $x = 5$, the script prints out 1.1.

Problem 2:

Write a program that asks the user for the magnitude of an earthquake and prints out the classification according to the following table:

Class	Magnitude
Great	8 or more
Major	7 - 7.9
Strong	6 - 6.9
Moderate	5 - 5.9
Light	4 - 4.9
Minor	3 -3.9
Trivial	less than 3.

Problem 3:

Write a program that finds the best approximation $\frac{a}{b} \approx e$ using integers $a, b \in \mathbb{N}$ with four or less decimal digits, where e is the Euler constants.

Problem 4:

Write a program that calculates the n-th harmonic number (where n is obtained by asking the user to input it. The n-th harmonic number is defined to be $H_n = \sum_{\nu=1}^{n} \frac{1}{n}$. For example, $H_{100} = 5.18738$.