In today’s lesson you will use knowledge of Taylor polynomials to solve a numerical computation problem.

**Problem:** Compute the value of $e$, accurate to 4 decimal places, without touching the $e^x$ button on your calculator.

You will need knowledge and skills from previous lessons:

- Know how to compute Taylor polynomials.
- Know that higher degree Taylor polynomials are more accurate.
- Know that accuracy is better at points close to the center point.

The solution to the problem is not hard. There are only two steps:

1. Replace $e^x$ with a Taylor polynomial, $T_n(x)$.
2. Plug $x = 1$. That is, compute $T_n(1)$.

**Note:** You can compute $T_n(1)$ using only $+,-,\times$ and $\div$ on your calculator.

There are some details, though:

- You have to pick a center point. $x = 0$ is a good first choice.
- You need a suitably high degree. How high is the subject of this lesson.

You will need new knowledge and skills:

1. Know that the term **stepsize** refers to the distance between the center point and the evaluation point.
2. Given $f$, center point, and fixed stepsize, determine the minimum degree needed for a desired accuracy.
3. Given $f$, center point, and a choice of higher degree or lower stepsize, determine which choices will or will not deliver the desired accuracy.