Self-Test: While Loops

You should take this self-test after listening to the presentations. Try it out on your own before you look at the solutions.

1. First let make sure you know how for-loops work. Calculate \[ \sum_{i=1}^{10} \frac{i^3}{i \cdot (i + 2)}. \]

2. Now use an equivalent while loop to calculate the same sum. You have to initialize the iteration variable \( i \) and you have to increment it during the loop.

3. Now let us find the smallest \( n \) such that \( \sum_{i=1}^{n} i^2 > 10000 \). Use a while loop.

The last problem is slightly tricky since we increment \( i \) after calculating the accumulator. You need to watch closely what the current value of \( i \) is going to be and how it relates to the accumulator.