1.1 Scientific notation

Checklist

What you should know

By the end of this subtopic you should be able to:

- understand that scientific notation, $a \times 10^k$, where $1 \leq a < 10$ and k is an integer, is used to efficiently express very large or very small numbers
- convert between ordinary number format and scientific notation $a \times 10^k$ where $1 \leq a < 10$ and k is an integer
- recognise that
  - when $1 \leq a < 10$ and k is a negative integer, $a \times 10^k$ is a number between 0 and 1,
  - when $1 \leq a < 10$ and k is a positive integer, $a \times 10^k$ is a number greater or equal to 10.
- distinguish between correct and incorrect scientific notation based on the conditions that $1 \leq a < 10$ and k is an integer in $a \times 10^k$
- add, subtract, multiply, divide, and raise to powers any number written in scientific notation
- convert results that are in nearly scientific notation form to correct scientific notation when performing computations with numbers in scientific notation.