Floating-point Numbers

Numbers with a decimal fraction are called floating-point numbers. They are used to **model real numbers** from mathematics. C++ has three different floating-point types: `float`, `double`, and `long double`.

Floating-point literals in C++ are written in two ways:

- Using **fixed-point notation** (`2.0`). The value is stored as a `double`.
- Using scientific or exponential notation. For instance, you can write (`2.9979E+8` to represent the speed of light, instead of writing it as `299790000`.) The exponent can be positive (for large numbers) or negative (for very small numbers), and you can use an uppercase or lowercase "E".

You can change the **storage** of your literals by appending an `F` for type `float` and an `L` for a type `long double`.

Here are some examples of floating-point literals:

```
auto a = 3.14159;       // fixed notation, type double
auto b = 2.997E8;       // scientific notation, type double
auto c = 299'792'458L;  // fixed notation, type long double
auto d = 3.5F;          // fixed notation, type float
```

Generally, use `double`, not `float` or `long double`.