Math functions

Header `<cmath>` declares a set of functions to compute common mathematical operations and transformations:

- **Trigonometric functions**
- **Exponential and logarithmic functions**
- **Power functions**:  
  \[
  \text{pow}(\text{base}, \text{power}) \rightarrow \text{pow}(3, 2) = 3^2 = 9 \\
  \text{sqrt}(\text{value}) \rightarrow \text{sqrt}(16) = 4 \\
  \]
- **Rounding and remainder functions**:  
  \[
  \text{ceil}(\text{value}) \rightarrow \text{round up value} \rightarrow \text{ceil}(2.3) = 3 \\
  \text{floor}(\text{value}) \rightarrow \text{round down value} \rightarrow \text{floor}(2.8) = 2 \\
  \text{round}(\text{value}) \rightarrow \text{round to nearest} \rightarrow \text{round}(2.3) = 2 \\
  \]
- **Minimum, maximum, difference functions**
- **Other functions**:  
  \[
  \text{abs}(\text{value}) \rightarrow \text{abs}(-4) = 4 \\
  \]
**rand() function**

(included in `<cstdlib>` library)

Returns a pseudo-random integral number in the range between 0 and RAND_MAX. RAND_MAX - this value is library-dependent, but is guaranteed to be at least 32767 on any standard library implementation.

A typical way to generate trivial pseudo-random numbers in a determined range using rand is to use the modulo of the returned value by the range span and add the initial value of the range:

```
rand() % v2 + v1
```

v1 is the starting point of the range, including (by default is 0)
v2 is how many numbers should be in the range

Examples:

v1 = rand() % 100;  // v1 in the range 0 to 99
v2 = rand() % 100 + 1;  // v2 in the range 1 to 100
v3 = rand() % 30 + 1985;  // v3 in the range 1985-2014
**Casting**

Example:
```cpp
int f;
double c;
cout << "Enter a temperature in degrees fahrenheit :" ;
cin >> f;
c = (f - 32) * ((double) 5) / 9;
cout << "In celsius that is: " << c << endl;
return 0;
```