New Mathematical Functions

With C++17 we get lots of new mathematical functions like gcd, lcm, clamp and other special ones.

std::gcd and std::lcm, introduced in P0295R0, are declared in <numeric>
header:

```
#include <iostream>
#include <numeric> // for gcm, lcm

int main() {
    std::cout << std::gcd(24, 60) << ',';
    std::cout << std::lcm(15, 50) << '\n';
}</pre>
```

```
clamp(v, min, max) #
```

Another useful function is clamp(v, min, max), declared in <algorithm>, from P0025:

```
#include <iostream>
#include <algorithm> // clamp

int main() {
   std::cout << std::clamp(300, 0, 255) << ',';
   std::cout << std::clamp(-10, 0, 255) << '\n';
}</pre>
```







And what's more, here are newly available special functions, defined in the <cmath> header.

Function	Description
assoc_laguerre	Functions compute the associated Laguerre polynomials of their respective arguments n, m, and x
assoc_legendre	Functions compute the associated Legendre functions of their respective arguments l, m, and x
beta	Functions Compute the beta function of their respective arguments x and y
comp_ellint_1	Complete elliptic integral of the first kind of their respective arguments k
comp_ellint_2	Compute the complete elliptic integral of the second kind of their respective arguments k
comp_ellint_3	Compute the complete elliptic integral of the third kind of their respective arguments k and nu
cyl_bessel_i	Compute the regular modified cylindrical Bessel functions of their respective arguments nu and x
cyl bossol i	Compute the cylindrical Bessel

Cy1_bessel_j	functions of the first kind of their
	respective arguments nu and x
cyl_bessel_k	Compute the irregular modified cylindrical Bessel functions of their respective arguments nu and x
cyl_neumann	Compute the cylindrical Neumann functions, also known as the cylindrical Bessel functions of the second kind, of their respective arguments nu and x
ellint_1	Compute the incomplete elliptic integral of the first kind of their respective arguments k and phi (phi measured in radians)
ellint_2	Compute the incomplete elliptic integral of the second kind of their respective arguments k and phi (phi measured in radians)
ellint_3	Compute the incomplete elliptic integral of the third kind of their respective arguments k, nu, and phi (phi measured in radians)
expint	Compute the exponential integral of their respective arguments x
hermite	Compute the Hermite polynomials of their respective arguments n and x
laguerre	Compute the Laguerre polynomials of their respective arguments n and x

legendre	Compute the Legendre polynomials of their respective arguments l and x
riemann_zeta	Compute the Riemann zeta function of their respective arguments x
sph_bessel	Compute the spherical Bessel functions of the first kind of their respective arguments n and x
sph_legendre	Compute the spherical associated Legendre functions of their respective arguments l, m, and theta (theta measured in radians)
sph_neumann	Compute the spherical Neumann functions, also known as the spherical Bessel functions of the second kind, of their respective arguments n and x

Extra Info: The above special functions were introduced in N1542 ver 3

Next up, we'll learn about a new method of handling arrays introduced in C++ 17.