G.6.4.2 The `clog` functions

- `clog(conj(`z`))` $\equiv$ `conj(clog(`z`))`
- `clog(` $-0 \pm i0$) returns $-\infty \pm i\pi$ and raises the "divide-by-zero" floating point exception
- `clog(` $+0 \pm i0$) returns $-\infty \pm i0$ and raises the "divide-by-zero" floating point exception
- `clog(` $x \pm i\infty$) returns $\infty \pm i\,\frac{\pi}{2}$ for finite or non finite x
- `clog(` $x + i\text{NaN}$) returns $\text{NaN} + i\text{NaN}$ and optionally raises the "in valid" floating point exception, for finite x
- `clog(` $-\infty \pm iy$) returns $\infty \pm i\pi$ for finite y
- `clog(` $+\infty \pm iy$) returns $\infty \pm i0$ for finite y
- `clog(` $-\infty \pm i\infty$) returns $\infty \pm i\,\frac{3\pi}{4}$
- `clog(` $+\infty \pm i\infty$) returns $\infty \pm i\,\frac{\pi}{4}$

G.7 Type-generic math <`tgmath.h`>

Type-generic macros that accept complex arguments also accept imaginary arguments. If an argument is imaginary, the macro expands to an expression whose type is real, imaginary, or complex, as appropriate for the particular function: if the argument is imaginary, then the types of **`cos`**, **`cosh`**, **`fabs`**, **`carg`**, **`cimag`**, and **`creal`** are real; the types of **`sin`**, **`tan`**, **`sinh`**, **`tanh`**, **`asin`**, **`atan`**, **`asinh`**, and **`atanh`** are imaginary; and the types of the others are complex.

Given an imaginary argument *iy*, the type-generic macros **`cos`**, **`sin`**, **`tan`**, **`cosh`**, **`sinh`**, **`tanh`**, **`asin`**, **`atan`**, **`asinh`** and **`atanh`** are specified by a formula in terms of real functions:

$$\begin{aligned}
\texttt{cos}(iy) &= \texttt{cosh}(y)\\
\texttt{sin}(iy) &= i\ \texttt{sinh}(y)\\
\texttt{tan}(iy) &= i\ \texttt{tanh}(y)\\
\texttt{cosh}(iy) &= \texttt{cos}(y)\\
\texttt{sinh}(iy) &= i\ \texttt{sin}(y)\\
\texttt{tanh}(iy) &= i\ \texttt{tan}(y)\\
\texttt{asin}(iy) &= i\ \texttt{asinh}(y)\\
\texttt{atan}(iy) &= i\ \texttt{atanh}(y)\\
\texttt{asinh}(iy) &= i\ \texttt{asin}(y)\\
\texttt{atanh}(iy) &= i\ \texttt{atan}(y)
\end{aligned}$$

Given an imaginary argument *iy*, the mathematical formulae for **`acos`** and **`acosh`** are specified in terms of real functions and constants:

$$\begin{aligned}
\texttt{acos}(iy) &= \frac{\pi}{2} - i\ \texttt{asinh}(y)\\
\texttt{acosh}(iy) &= \texttt{asinh}(y) + i\ \frac{\pi}{2}
\end{aligned}$$