Two sets of macros for <float.h>

Existing practice: Many implementation have macros (with various
spellings) for the minimum subnormal numbers. C99 has DECIMAL_DIG
with the similar meaning as LDBL_MAXDIG10.

Add new bullets to 5.2.4.2.2 Characteristics of floating types
<float.h>

[bullet near DECIMAL_DIG] The number of base 10 digits required to
ensure that floating-point numbers with /p/ radix /b/ digits which
differ by only one unit in the last place (ulp) are always
differentiated,

\[
/p/ \log_{10} /b/ \quad \text{if } /b/ \text{ is power of 10}
\]

\[
\text{ceil}(1 + /p/ \log_{10} /b/) \quad \text{otherwise}
\]

[Note to editor: WG14 paper N1290 on printed page 9 has the correct
symbols/fonts for the above two math expressions: it is also the same
as the existing math expressions for DECIMAL_DIG in C99.]

\[
\begin{align*}
\text{FLT\_MAXDIG10} & \quad 6 \\
\text{DBL\_MAXDIG10} & \quad 10 \\
\text{LDBL\_MAXDIG10} & \quad 10 \\
\end{align*}
\]

[bullet after FLT\_MIN] An implementation shall define the following
macros if and only if it supports [footnote] subnormal (also known as
denormal) numbers of the respective types. Their value is the minimum
positive subnormal floating-point number:

\[
\begin{align*}
\text{FLT\_SUBNORMAL\_MIN} & \quad 1E-42 \\
\text{DBL\_SUBNORMAL\_MIN} & \quad 1E-46 \\
\text{LDBL\_SUBNORMAL\_MIN} & \quad 1E-46 \\
\end{align*}
\]

Their values are typically, but not always, FLT\_MIN * FLT\_EPSILON,
DBL\_MIN * DBL\_EPSILON, LDBL\_MIN * LDBL\_EPSILON, respectively.

[footnote]: Support means that they are not flushed to zero when used
as operands, nor, when an arithmetic operation produces them.

[paragraph 13, example 1]
Add

\[
\begin{align*}
\text{FLT\_MAXDIG10} & \quad ?? \\
\text{DBL\_MAXDIG10} & \quad ?? \\
\end{align*}
\]

after DECIMAL_DIG

[paragraph 14, example 2]
Remove ”normalized” from just before IEC60559.

Add

\[
\begin{align*}
\text{FLT\_MAXDIG10} & \quad 6 \\
\text{DBL\_MAXDIG10} & \quad 17 \\
\end{align*}
\]

after DECIMAL_DIG

Add

\[
\begin{align*}
\text{FLT\_SUBNORMAL\_MIN} & \quad ? \quad \text{// decimal constant}
\end{align*}
\]
FLT_SUBNORMAL_MIN  0X1P-149 // hex constant
DBL_SUBNORMAL_MIN  ? // decimal constant
DBL_SUBNORMAL_MIN  0X1P-1074 // hex constant
after FLT_MIN and DBL_MIN.

Words for Rationale: Are any needed?