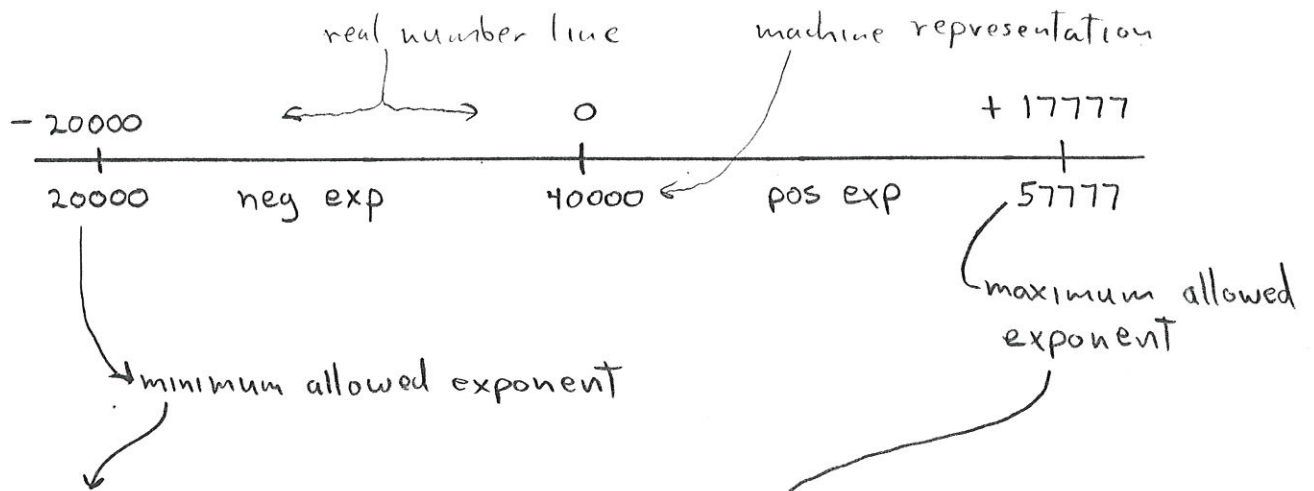


Exponent Range



exp 17777 mean underflow
which means number is
too small for machine

underflow

$20000 \rightarrow 010\ 000\ 000\ 000\ 000$
 $17777 \rightarrow 001\ 111\ 111\ 111\ 111$

\downarrow bit 2^{61}
 \downarrow bit 2^{62}

if $2^{61} = 2^{62} = \emptyset$
underflow

exp 60000 means overflow
which means number too big
for machine

overflow

$57777 \rightarrow 101\ 111\ 111\ 111\ 111$
 $60000 \rightarrow 110\ 000\ 000\ 000\ 000$

\downarrow bit 2^{61}
 \downarrow bit 2^{62}

if $2^{61} = 2^{62} = 1$ says overflow

exponent ≥ 60000 results in floating point range error
 exponent < 20000 treated as zero exponent (no error flagged)