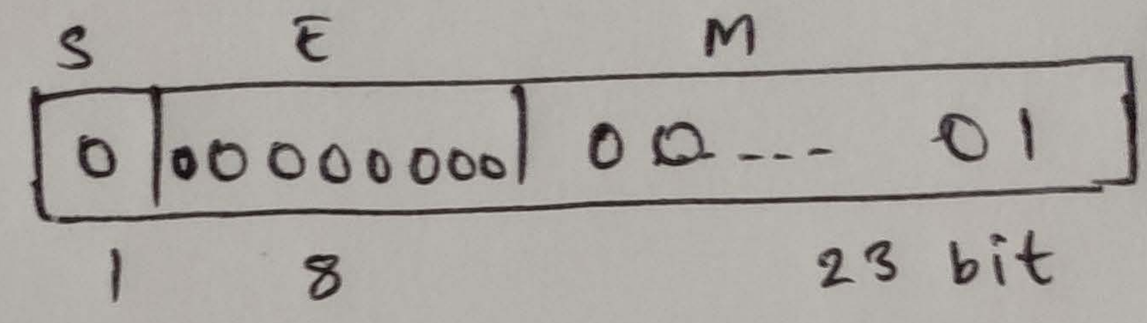
for 32-bit floating point no. (IEEE Format)-

the smallest no. is $\underbrace{000\ldots01}_{32\text{ bit}}$.



here exp = 0 - 127 = -127

sign = 0 (+ve)

& m = 00 --- 01 or 2^{-23}

so no. = $(1+2^{-23}) \times exp$

$= (1+2^{-23}) \times 2^{-127}$

$= 2^{-127} + \boxed{2^{-150}}$

nearest to zero

& we have condition that $(i \neq 0)$

so it is the closest one.

that's why 150 steps.

Same for double $\Rightarrow$ 1075.