2) When the content of the exponent(e) = 0 & significant(m) is ≠ 0 then the sub normal number is

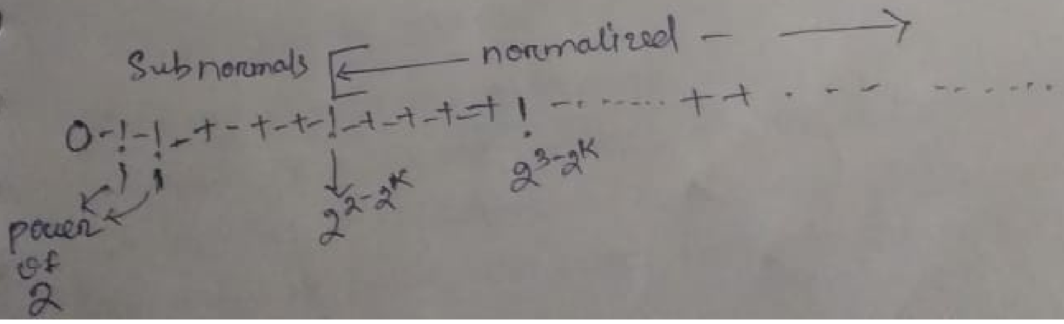
$(-1)^s \times 0.m \times 2^{-126}$

	normalized number	subnormal
smallest	2^{-126}	$2^{-149} \simeq 0$
largest	3.4×10^{38}	$0.99999988 \times 2^{-126}$ ≃ smallest normalized number

=> So there are total $[0.0, 2^{-126}]$ that means 2^{23} numbers with in the range.

=> The smallest difference between 2 normalized number is 2^{-149} which is equal to difference between any two consecutive subnormal numbers.

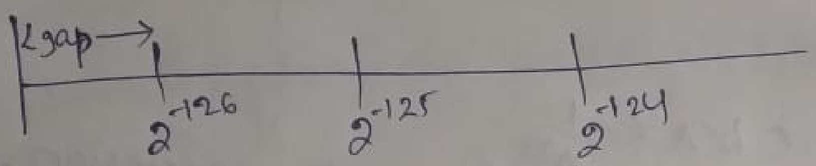
=> Meanwhile the largest difference b/w 2 consecutive numbers is 2^{104}



⇒ Subnormals extend range of magnitudes repre-sentable but have less precission than normalised numbers.

⇒ for a 32 bit precission type the number line distinguishes between normal & subnormal values in the figure below

i) without subnormal



ii) with subnormal