IEEE 754 32-Bit method:

Ex. 2- Represent the number (-497.75) in 32 bit register using IEEE 754 method.

Here the number is (-497.75). Its integer part is 497 and fractional part is .75

Step1- We convert the binary of both parts.

\[
(497)_{10} = (111110001)_2 \quad \& \quad (.75)_{10} = (11)_2
\]

Hence the entire number becomes \((-497.75)_{10} = (111110001.11)_2\)

Step2- We normalize the converted binary in to the \([m \times r^e]\) format. For this, we move the decimal point to the extreme left leaving one single 1 omitted.

Thus it becomes \(1.1111000111 \times 2^8\) \{since the decimal point has been moved 8 places left\}

Step3- We prepare our parts for representation.

- The sign = 1 \{for negative\}
- Mantissa = 1111000111 \{the fractional part leaving the MSB 1 omitted\}
- Exponent = \((8 + 127) = 135\) \{See the NOTE\}

![Diagram](image-url)
Assignment:

1. Represent the number (-1374.1250) in 32 bit register using IEEE 754 method.