

$$\downarrow -250.625$$

$$32\text{-bit} \rightarrow k=8$$

$$\begin{aligned} 250/2 &= 125 \text{ R } 0 \\ 125/2 &= 62 \text{ R } 1 \\ 62/2 &= 31 \text{ R } 0 \\ 31/2 &= 15 \text{ R } 1 \\ 15/2 &= 7 \text{ R } 1 \\ 7/2 &= 3 \text{ R } 1 \\ 3/2 &= 1 \text{ R } 1 \\ 1/2 &= 0 \text{ R } 1 \end{aligned}$$

$$\begin{aligned} 0.625 \times 2 &= 1.25 \\ 0.25 \times 2 &= 0.5 \\ 0.5 \times 2 &= 1.0 \\ 0 \end{aligned}$$

$$0.625 = 101$$

$$-250 = 11111010$$

$$250.625 = 1111010.101 \times 2^0$$

$$1.111010101 \times 2^7 \leftarrow$$

mantissa

$$2^{k-1} - 1$$

$$2^{8-1} - 1$$

$$2^7 - 1 = 127 + 7 = 134/2 = 67 \text{ R } 0$$

$$67/2 = 33 \text{ R } 1$$

$$33/2 = 16 \text{ R } 1$$

$$16/2 = 8 \text{ R } 0$$

$$8/2 = 4 \text{ R } 0$$

$$4/2 = 2 \text{ R } 0$$

$$2/2 = 1 \text{ R } 0$$

$$1/2 = 0 \text{ R } 1$$

$$134 = 10000110$$

Sign

$$\boxed{1} 100001101111010101000000000000$$

$$19 \ 20$$

$$32 - 19 = 13$$

$$31 - 19 = 12$$