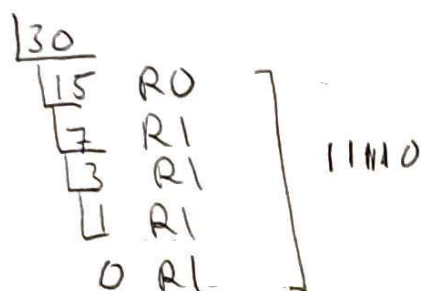


1. Convert the decimal number -30.375 to IEEE short (32-bit) standard floating-point format.

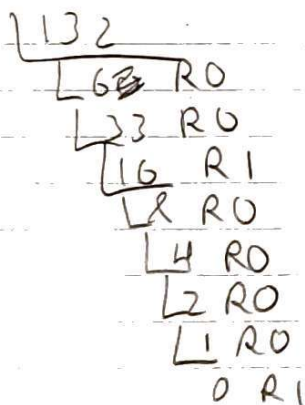


$$\begin{array}{rcl} 0.375 \times 2 & = & 0.75 \quad 0 \\ 0.75 \times 2 & = & 1.5 \quad 1 \\ 0.5 \times 2 & = & 1.00 \quad 1 \end{array}$$

11110.011

0.1110011 $\times 2^5$

11000010011001100000000000000000



2. $\begin{array}{r} 142 \text{ R0} \\ \underline{71} \text{ R0} \\ 71 \text{ R1} \\ \underline{35} \text{ R1} \\ 36 \text{ R1} \\ \underline{17} \text{ R1} \\ 19 \text{ R0} \\ \underline{4} \text{ R0} \\ 15 \text{ R0} \\ \underline{11} \text{ R0} \\ 4 \text{ R1} \end{array}$

$$142_{10} = 1000 \ 1110_2$$

$$\begin{aligned} 0.65625 \times 2 &= 1.3125 \\ 0.3125 \times 2 &= 0.625 \\ 0.625 \times 2 &= 1.25 \\ 0.25 \times 2 &= 0.5 \\ 0.5 \times 2 &= 1.0 \end{aligned}$$

$$0.65625_{10} = 0.10101_2$$

$$142.65625 = 1000 \ 1110.0101$$

1.0001 1101 0101 0000 0000 0000