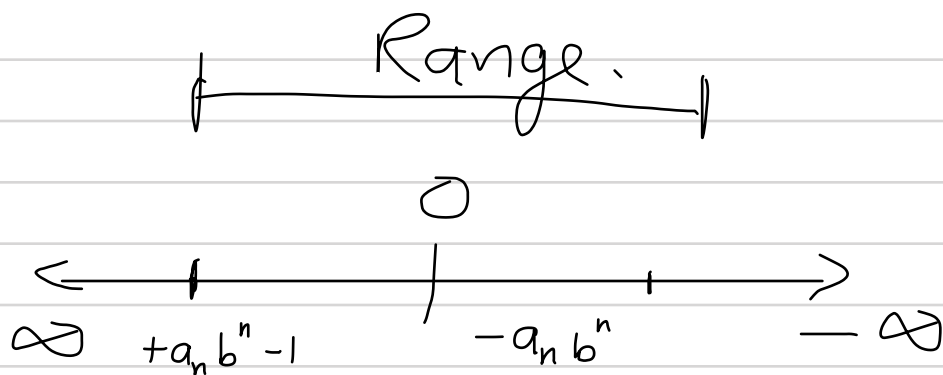


Project Report:

5 pages MAX

all inclusive.

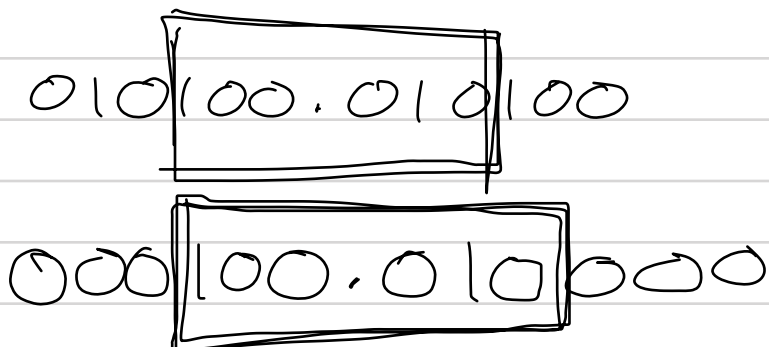


Resolution: b^{-m}

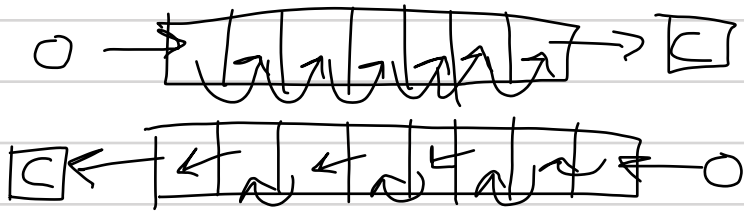
$$\text{Range: } a_n b^n - 1 - (-a_n b^n)$$

$$= 2a_n b^n - 1$$

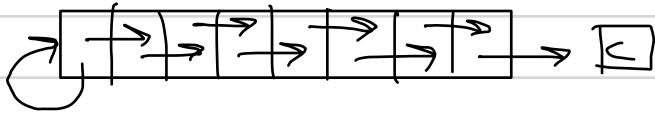
$$\text{If } b=2 \Rightarrow \text{Range} = a_n 2^{n+1} - 1$$



Logical Shift



Arithmetic shift



$$\begin{aligned} 11011 &= -5 \\ 111011 &= -3 \\ 11101.1 &= -2.5 \end{aligned}$$



$$\begin{aligned} 11011 &= -5 \\ \boxed{11} \quad 10110 &= -10 \\ \boxed{11} \quad 01100 &= +2 \quad \text{overflow} \end{aligned}$$

Binary division

$$360 \div 4 \qquad 4 \overline{) 360} \begin{array}{r} 090 \\ \underline{36} \\ -36 \\ \underline{00} \end{array}$$

$$\begin{aligned} 360_{10} &= 101101000 \\ 4_{10} &= 100 \end{aligned}$$

$$\begin{array}{r} 00101 \\ 100 \overline{) 101101000} \\ \underline{101} \\ -100 \\ \underline{110} \\ -100 \\ \underline{10} \end{array}$$

$$\begin{array}{r}
 001011010\underline{000} \\
 100 \overline{) 101101000.000} \\
 \underline{101} \\
 -100 \\
 \hline
 110 \\
 -100 \\
 \hline
 101 \\
 -100 \\
 \hline
 100 \\
 -100 \\
 \hline
 0000
 \end{array}$$

$$\begin{aligned}
 101101000 \div 100 &= 101011010 \\
 &= 90_{10}
 \end{aligned}$$