Booth's Algo. (Signed Mult^n) :

Eg :→ $\overset{M}{\uparrow}$ $\overset{Q}{\uparrow}$ $(-7) * (+3)$

Multiplicand - (-7)

(M) = 2's comp. of $(7)_{10}$ = 2's comp (0111)

$\therefore M = (1001)_2$

& $-M = -(-7) = 7_{10} = (0111)_2$

Tracing Table :

	n	A	Q	Q_0	Action
	4	0000	0011	0	Init^n
Step 1		0111	0011	0	$A = A-M$ i.e $A+(-M)$
	3	0 011	1001	1	ASR AQ Q_0 & n-1
Step 2	2	0001	1100	1	ASR AQ Q_0 & n-1
Step 3	2	1010	1100	1	$A = A+M$
	1	1101	0110	0	ASR AQ Q_0 & n-1
Step 4	0	1110	1011	0	ASR AQ Q_0 & n-1

↓

1 110 1011

↳ Since MSB = 1, Take 2's comp. & Prod will be (-)ve

0001 0100

\+ 1

$(0001\ 0101)_2 = (-21)_{10}$