Step 4 :-

Multiplication

[Note : 2n bits product so extend MSB before with 0]

```
            0   1   1   0   1           (x)
            0  -1   1  -1   0    → Take 2's Compl
----------------------------------------------
0 0 0 0 0 0 0 0 0 0                    (2n bits value)
0 0 1 1 1 0 0 1 1
0 0 0 0 1 1 0 1
1 1 1 0 0 1 1
0 0 0 0 0 0 1
----------------------------------------------
1 1 1 1 0 1 1 0 0 1 0                  (-78)
```

To verify the answer take 2's complement for -78.

CARRY SAVE ADDITION :-

- Type of digital adding method
- used to efficiently compute the sum of three or more binary numbers.

eg :-

45 × 63

45 → 1 0 1 1 0 1 } Binary representation

63 → 1 1 1 1 1 1

1 0 1 1 0 1   A

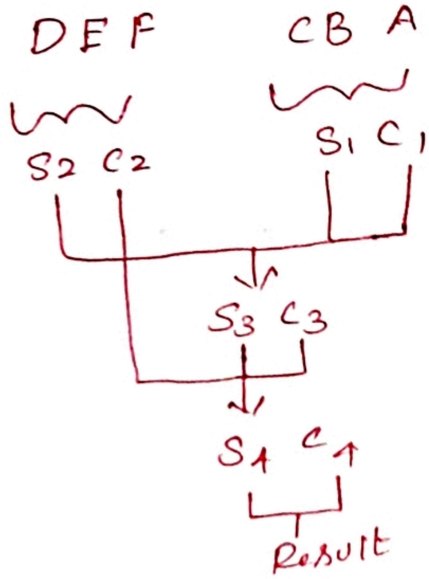
1 0 1 1 0 1 x   B

1 0 1 1 0 1 x x   C

1 0 1 1 0 1 x x x   D

1 0 1 1 0 1 x x x x   E

1 0 1 1 0 1 x x x x x   F



Add → ABC

1 0 1 1 0 1   A

1 0 1 1 0 1 x   B

1 0 1 1 0 1 x x   C

1 0 0 0 0 0 1 1 S_1

0 1 0 1 1 0 0 x C_1

Add → DEF

1 0 1 1 0 1 x x x   D

1 0 1 1 0 1 x x x x   E

1 0 1 1 0 1 x x x x x   F

1 1 0 0 0 0 1 1 0 0 0 S_2

0 0 1 1 1 0 0 0 0 0 x C_2

Step 8: Add → S_1, C_1, S_2

```
      1 1 0 0 0 0 1 1    S1
      0 1 1 1 1 0 0 x    C1
1 1 0 0 0 0 1 1 0 0 0    S2
---------------------------
1 1 0 1 0 1 0 0 0 1 1    S3
0 0 0 1 0 1 1 0 0 0 x    C3
```

Step 9: Add → $S_3\ C_3\ C_2$

```
1 1 0 1 0 1 0 0 0 1 1    S3
0 0 0 1 0 1 1 0 0 0 x    C3
0 1 1 1 1 0 0 0 0 0 x    C2
---------------------------
1 0 1 1 1 0 1 0 0 1 1    S4
1 0 1 0 1 0 0 0 0 0 x    C4
```

Step 5: Add $S_4\ C_4$

```
  1 0 1 1 1 0 1 0 0 1 1    S4
  1 0 1 0 1 0 0 0 0 0 x    C4
      1   1   1
-----------------------------
1 0 1 1 0 0 0 1 0 0 1 1  → 2835
```