

QUESTION No. 1

$$8 \div 3 = ?$$

$$\begin{array}{r} 3 \overline{) 8} \\ \underline{6} \\ 2 \end{array}$$

② → Quotient
② → Remainder

$$-M = 1101$$

A	Q	M	
0000	1000	0011	
0001	0000	0011	Shift
1110	0000	0011	1st Iteration $A-M < 0$
0001	0000	0011	$Q_0 = 0$, Restore
0010	0000	0011	Shift
1111	0000	0011	2nd Iteration $A-M < 0$
0010	0000	0011	$Q_0 = 0$, Restore
0100	0000	0011	Shift
0001	0001	0011	3rd Iteration $A-M > 0$
			$Q_0 = 1$
0010	0010	0011	Shift
1111	0010	0011	4th Iteration $A-M < 0$
0010	0010	0011	$Q_0 = 0$, Restore

$$\text{Quotient} = (0010)_2 = (2)_{10}$$

$$\text{Remainder} = (0010)_2 = (2)_{10}$$

QUESTION No. 2:

$$-8 \times -3 = ?$$

A	Q	Q ₋₁	M	
00000	11101	0	11000	1st Iteration
01000	11101	0	11000	
00100	01110	1	11000	

$$A = A - M$$

Shift

00100	01110	1	11000	2nd Iteration
11100	01110	1	11000	
11110	00111	0	11000	

$$A = A + M$$

Shift

11110	00111	0	11000	3rd Iteration
00110	00111	0	11000	
00011	00011	1	11000	

$$A = A - M$$

Shift

00011	00011	1	11000	4th Iteration
00001	10001	1	11000	

Shift

00001	10001	1	11000	5th Iteration
00000	11000	1	11000	

Shift

$$\text{Answer} = (00000 \ 11000)_2 = (+24)_{10}$$