

$$\therefore -17 \bmod 23 = -17 + 23 = 6$$

$$\begin{array}{r} 23 \overline{) -17} \quad (1 \\ \underline{-23} \phantom{0} \\ 6 \end{array}$$

As the mod should be within 0 to 22

So the answer is 6

$$\therefore -17 \bmod 23 = 6$$

2. Multiplicative Inverse of  $-13 \bmod 23$

$$(-13)x \equiv 1 \bmod 23$$

So now,

$$10x \equiv 1 \bmod 23 \quad \text{--- (1)}$$

Since,

$$-13 + 23 = 10$$

$$-13 \equiv 10 \pmod{23}$$

if $x=1$	then.	$10 \cdot 1 = 10$	$\therefore 10 \bmod 23 \neq 1$
$x=2$	"	$10 \cdot 2 = 20$	$\therefore 20 \bmod 23 \neq 1$
$x=3$	"	$10 \cdot 3 = 30$	$\therefore 30 \bmod 23 \neq 1$
$x=4$	"	$10 \cdot 4 = 40$	$\therefore 40 \bmod 23 \neq 1$
$x=5$	"	$10 \cdot 5 = 50$	$\therefore 50 \bmod 23 \neq 1$
$x=6$	"	$10 \cdot 6 = 60$	$\therefore 60 \bmod 23 \neq 1$
$x=7$	"	$10 \cdot 7 = 70$	$\therefore 70 \bmod 23 = 1$

$\therefore$  multiplicative inverse of  $-13 \bmod 23 = 7$ .