

RAMI PROSAD SARKER
JT-21038

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

$$\begin{array}{r} 23) -17 (1 \\ -23 \\ \hline 6 \end{array}$$

As the mode should be within 0 to 22

so the answer is 6

$$-17 \bmod 23 = 6$$

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

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

so now,

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

Since,

$$-13 + 23 = 10$$

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

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

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