31/5/22. Seminar. 21PC07.. A. Bhadru

1) Compute:

15×59 modulo 75

$15 \times 59 = 3 \times 5 \times 59$

$59 \equiv$

Note that $59 \equiv -16 \pmod{75}$.

Hence. $15 \times 59 \equiv 3 \times 5 \times -16 \pmod{75}$.

$15 \times 59 \equiv 3 \times -80 \pmod{75}$

$15 \times 59 \equiv 3 \times -5$.

$= -15$.

15×59 modulo 75 = -15

2). Compute $25 \div 16$ modulo 79.

$\frac{25}{16} \equiv ? \pmod{79}$

Note: $16 \times 5 = 80 \equiv 1 \pmod{79}$.

$16 \times 5 \equiv 1 \pmod{79}$

$\frac{1}{16} \quad \frac{16}{5} \equiv \frac{1}{5} \pmod{79}$,

$5 \equiv \frac{1}{16} \pmod{79}$.

$\frac{1}{16} \equiv 5 \pmod{79}$.

$\frac{25}{16} \equiv 25 \times 5 \pmod{79}$

$\frac{25}{16} \equiv 25 \pmod{79}$

$= 46$.

$\boxed{\frac{25}{16} \pmod{79} = 46}$.