

## → Modular Arithmetic : 4

- 1)  $(a + b) \% M = ((a \% M) + (b \% M)) \% M$
- 2)  $(a * b) \% M = ((a \% M) * (b \% M)) \% M$
- 3)  $(a - b) \% M = ((a \% M) - (b \% M) + M) \% M$
- 4)  $(a / b) \% M = ((a \% M) * (b^{-1}) \% M) \% M$

Why we get "Print modulo  $10^9 + 7$ " in some problems?

Ans Because sometimes we can't store some value even in long long, so, we compute it till  $10^9 + 7$ .

We chose  $10^9 + 7$  only because:

- 1) It is very close to maximum value of int.
- 2) It is a prime number, which makes it easier for us to find multiplicative inverse in case of division formula.