The idea behind the code is based on below properties.

- **Property 1:**

  (m * n) % p has a very interesting property:

  (m * n) % p =((m % p) * (n % p)) % p

- **Property 2:**

  if b is even:

  (a ^ b) % n = ((a ^ b/2) * (a ^ b/2))%n ? this suggests divide and conquer

  if b is odd:

  (a ^ b) % n = (a * (a ^(b-1))%n

- **Property 3:**

  If we have to return the mod of a negative number x whose absolute value is

  less than y:

  then (x + y) % y will do the trick

The five results for different values of a, b, n are given below:

- Input : a = 2, b = 3, n = 6
  Output= 2
  Explanation: (2^3) % 6 = 8 % 6= 2

- Input : a = -3, b = 5, n = 89
  Output: 24
  Explanation: (-3^5) % 89 = -243 % 89 =24

- Input : a = 2, b = 3, n = 5
  Output= 3
  Explanation: (2^3) % 5 = 8%5 =3

- Input : a = -2, b = 5, n = 5
  Output= 3
  Explanation: (-2^5) % 5= -32%5 = -2%5 = 3

- Input : a = 12, b = 0, n = 5
  Output= 1
  Explanation: (12^0) % 5= 1%5 = 1