**Euler’s totient function**The number of positive integers, not greater than *n*, and relatively prime with *n*, equals to Euler’s totient function φ (*n*). In symbols we can state that

φ (*n*) ={*a* Î N: 1 ≤ *a* ≤ *n*, gcd(*a*, *n*) = 1}

This function has the following properties:

1. If *p* is prime, then φ (*p*) = *p* – 1 and φ (*pa*) = *p a* \* (1 – 1/*p*) for any *a*.
2. If *m* and *n* are coprime, then φ (*m* \* *n*) = φ (*m*) \* φ (*n*).
3. If *n* = http://community.topcoder.com/i/education/prime-eq4.jpg, then Euler function can be found using formula:

φ (*n*) = *n* \* (1 – 1/*p* 1) \* (1 – 1/*p* 2) \* … \* (1 – 1/*p k*)