

Answer on Question #82358 – Math – Combinatorics | Number Theory

Question

1. How many of first 100 terms in the sequence 3, 5, 7, 9, 11, 13, 15, ... are divisible by 6?

Solution

Each term in the sequence 3, 5, 7, 9, 11, 13, 15, ... is the odd number. Hence, it is not divisible by 6.

Therefore, there is no term in the sequence 3, 5, 7, 9, 11, 13, 15, ... which is divisible by 6.

Answer: 0 terms.

Question

2. 26th March is the Independence Day of Bangladesh. Independence of Bangladesh was declared on 26/03/1971. Find out the largest number that can be formed by taking multiplication of any two out of all the prime factors of the product of 26, 03 and 2010.

Solution

Every whole number greater than 1 is either prime or can be written as a product of prime numbers.

This prime factorisation is unique, apart from the order in which we write the prime factors.

$$26 = 2 \times 13$$

$$03 = 3$$

$$2010 = 2 \times 3 \times 5 \times 67$$

$$26 \times 3 \times 2010 = 2 \times 2 \times 3 \times 3 \times 5 \times 13 \times 67$$

Find out the largest number that can be formed by taking multiplication of any two out of all the prime factors of the product of 26, 03 and 2010

$$13 \times 67 = 871$$

Answer: 871.