

1 JEE Main 2021 (Online) 31st August Evening Shift

Numerical

The number of 4-digit numbers which are neither multiple of 7 nor multiple of 3 is _____.

Answer

Correct Answer is 5143

Explanation

A = 4-digit numbers divisible by 3

A = 1002, 1005,, 9999.

$$9999 = 1002 + (n - 1)3$$

$$\Rightarrow (n - 1)3 = 8997 \Rightarrow n = 3000$$

B = 4-digit numbers divisible by 7

B = 1001, 1008,, 9996

$$\Rightarrow 9996 = 1001 + (n - 1)7$$

$$\Rightarrow n = 1286$$

$A \cap B = 1008, 1029, \dots, 9996$

$$9996 = 1008 + (n - 1)21$$

$$\Rightarrow n = 429$$

So, no divisible by either 3 or 7

$$= 3000 + 1286 - 429 = 3857$$

total 4-digits numbers = 9000

$$\text{required numbers} = 9000 - 3857 = 5143$$