Past Year JEE Questions

Questions

Quetion: 01

Let A = {n∈N: n is a 3-digit number}
      B = {9k + 2: k ∈ N}
and C = {9k + l: k ∈ N} for some $l (0 < l < 9)$
If the sum of all the elements of the set A ∩ (B ∪ C) is 274 × 400, then l is equal to _____.

Solutions

Solution: 01

Answer
Correct Answer is **5**

Explanation

3 digit number of the form 9K + 2 are {101, 109, ………….992}

⇒ Sum equal to $\frac{100}{2}$(1093) = s_1 = 54650

274 × 400 = s_1 + s_2

274 × 400 = $\frac{100}{2}$[101 + 992] + s_2

274 × 400 = 50 × 1093 + s_2

s_2 = 109600 − 54650

s_2 = 54950

s_2 = 54950 = $\frac{100}{2}$[(99 + l) + (990 + l)]

1099 = 2l + 1089

l = 5