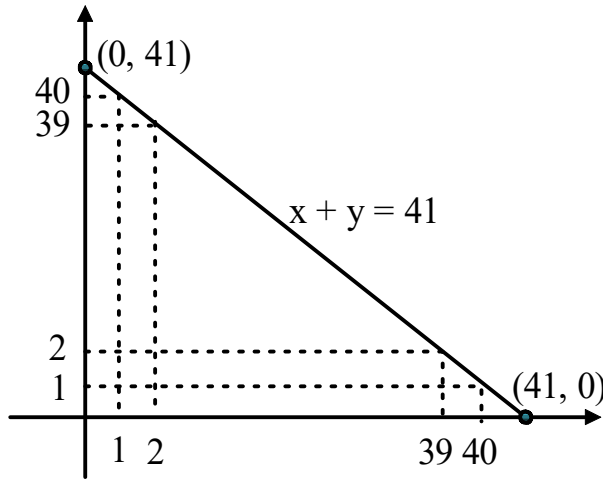


Question

The number of points, having both co-ordinates as integers, that lie in the interior of the triangle with vertices (0, 0), (0, 41) and (41, 0), is:

- (1) 861 (2) 820 (3) 780 (4) 901

Solution



The equation of the line passing through (41, 0) and (0, 41) is given by,

$$\frac{x}{41} + \frac{y}{41} = 1 \text{ or } x + y = 41$$

The 1st vertical line has 39 points having integral co-ordinates within the triangle.

2nd vertical line has 38 points

.....
39th vertical line has 1 point

Hence, total no. of points =
 $39 + 38 + \dots + 1 = \frac{39(39+1)}{2} = 780$

Hence, Option (3).