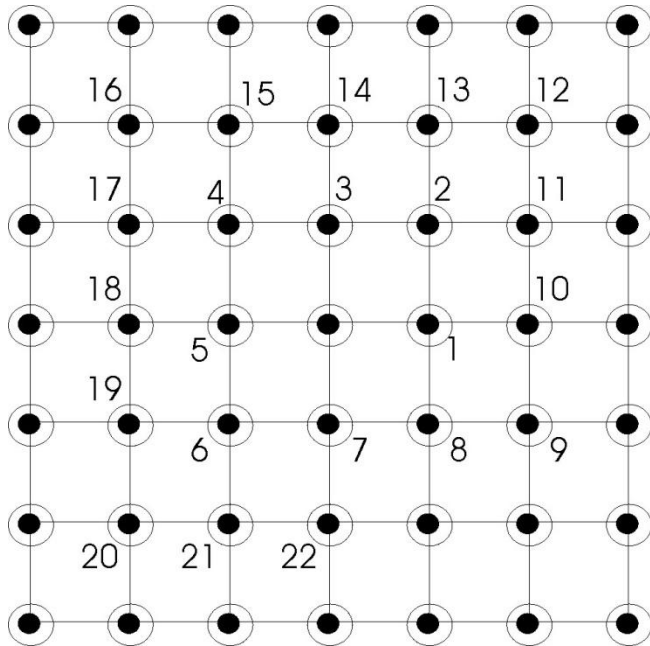


## Problem of the week

One goes on spiraling walk on cartesian plane. Starting at (0,0). The first five steps are (1,0) (1,1) (0,1), (-1, 1) and (-1,0). Find the point on 2002<sup>nd</sup> step.

**Solution:**



For the figure,

7th step is (0,-1)

22th step is (0,-2)

nth point is (0, -n) at step no.  $(2n+1)^2 - (n+1) = 4n^2 + 3n$

Let us see it

$$4n^2 + 3n = 2002$$

$$\Rightarrow (n-22)(4n+91) = 0$$

so 22<sup>nd</sup> point on y-axis

i.e. (0, -22) is the 2002<sup>nd</sup> step.