3. The robot *Lumber9* moves along the number line. *Lumber9* starts at 0, takes 1 step forward (to 1), then 2 steps backward (to −1), then 3 steps forward, 4 steps backward, and so on, moving alternately forwards and backwards, one more step each time. At what number is *Lumber9* after 2011 steps?

A 1006 B 27 C 11 D 0 E −18

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3. **A** After the n th step, *Lumber9* is at number: $\begin{cases} \frac{n+1}{2} & \text{for } n \text{ odd,} \\ \frac{-n}{2} & \text{for } n \text{ even.} \end{cases}$

Hence when $n = 2011$, *Lumber9* is at number $\frac{2011+1}{2} = 1006$.