

September 2025 Problem of the Month

Bunny needs a carrot

A bunny starts at $(0,0)$ in the coordinate plane and makes a series of hops. The bunny wants to get to a carrot at $(1, 0)$.

The bunny only has 8 choices for each hop. If its current location is (x, y) , its next hop must be to one of the following 8 points, much like how a knight moves on a chessboard, except 24 units in one direction and 7 units in a perpendicular direction.

$$(x + 24, y + 7), (x - 24, y + 7), (x + 24, y - 7), (x - 24, y - 7)$$

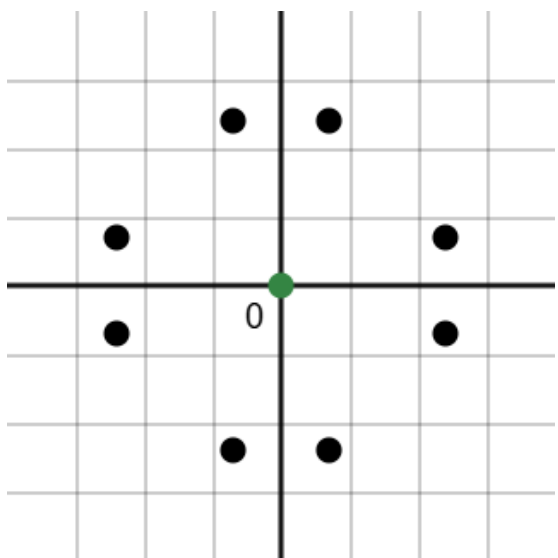
$$(x + 7, y + 24), (x - 7, y + 24), (x + 7, y - 24), (x - 7, y - 24)$$

Since the bunny starts at $(0, 0)$, its first hop must be to one of $(24,7), (-24, 7), (24, -7), (-24, -7), (7, 24), (-7, 24), (7, -24), (-7, -24)$.

Also, the bunny can go from $(0, 0) \rightarrow (24, 7) \rightarrow (17, 31) \rightarrow (41, 24)$ so it can get from $(0, 0)$ to $(41, 24)$ in 3 hops.

Show how the bunny can go from $(0, 0)$ to the carrot at $(1, 0)$ in as few hops as possible.

Please email solutions to Dr London at slondon@luc.edu in PDF form by 11:59 pm on September 30. Please clearly state your name, whether you are an undergraduate, and your major on your solution. The best solution wins.



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