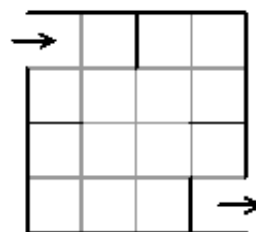




13. The diagram represents a maze. Given that you can only move horizontally and vertically and are not allowed to revisit a square, how many different routes are there through the maze?

A 16 B 12 C 10 D 8 E 6



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- 13. D** Let the centres of the starting and finishing squares in the maze have coordinates (1,4) and (4,1) respectively. Each path must pass through (2,3) and (3,2). There are two different routes from (1,4) to (2,3). The next visit is to (3,3) or (2,2). When visiting (3,3) the next visit has to be (3,2) as (3,4), (4,3) and (4,4) cannot be visited without subsequently revisiting a square. From (2,2) the next valid visit is to (1,2), (2,1) or (3,2). From each of these points there is only one route to (3,2). Thus there are four ways of visiting (3,2). Upon visiting (3,2), the only valid route through the maze is (4,2) then (4,1). Hence the number of different routes through the maze is $2 \times 4 = 8$.