8 Two squares are chosen at random on a chessboard. What is the probability that they have a side in common?

A. 1/18

B. 64/4032

C. 63/64

D. 1/9

See Answer & Explanation | Lets Discuss

Correct answer is : A

Explanation

No of ways of selecting two squares from 64 squares on the chess board is $^{64}C_2$.

Three cases arise:

case 1: when first square is any of the four corner ones

In this case second square can be chosen in 2 ways

no of ways of selecting two squares: 4*2 = 8

case2: when first square is any of the 24 squares on the side of the chess board other than the corner ones

the second square can be chosen in 3 ways

no of ways of selecting two squares: 24*3 = 72

case 3: the first square is any of the 36 remaining squares

the second square can be chosen in 4 ways

no of ways of selecting two squares: 36*4 = 144

Total no of ways of selecting two adjacent squares = 8 + 72 + 144 = 224

So required probability = $224/^{64}C_2$ = 224/4032 = 1/18