

**Difficulty: 2/4   Interest: 3/4**

Consider placing any number of queens (of the same color) on an  $n \times n$  chessboard in such a way as to maximize the number of legal moves available.

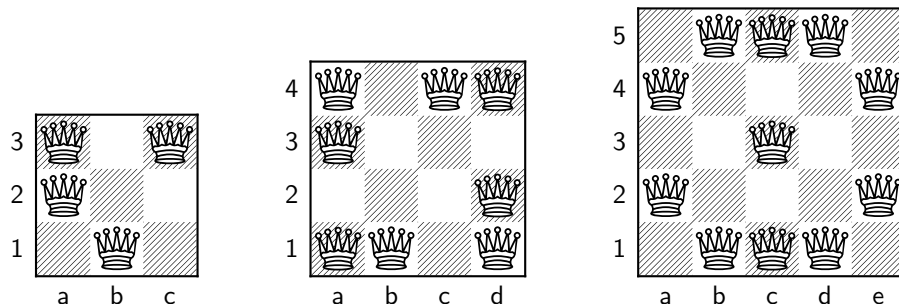


Figure 1: Examples of  $a_q(3) = 17$ ,  $a_q(4) = 40$ ,  $a_q(5) = 76$ .

**Question.** Is Alec Jones's conjecture true:  $a_q(n) = 8(n-2)^2$  for  $n \geq 6$ , by placing the queens around the perimeter?

**Related.**

1. What about the analogous function for rooks ( $a_r$ ) or bishops ( $a_b$ )?
2. What if the chessboard is a torus? Cylinder? Möbius strip?
3. What if the chessboard is  $n \times m$ ?
4. Is  $a_b(n) = \lfloor a_q(n)/2 \rfloor$ ? for all  $n$ ?
5. What if queens can attack?

**References.**

A278211: <http://oeis.org/A278211>

A278212: <http://oeis.org/A278212>

A275815: <http://oeis.org/A275815>