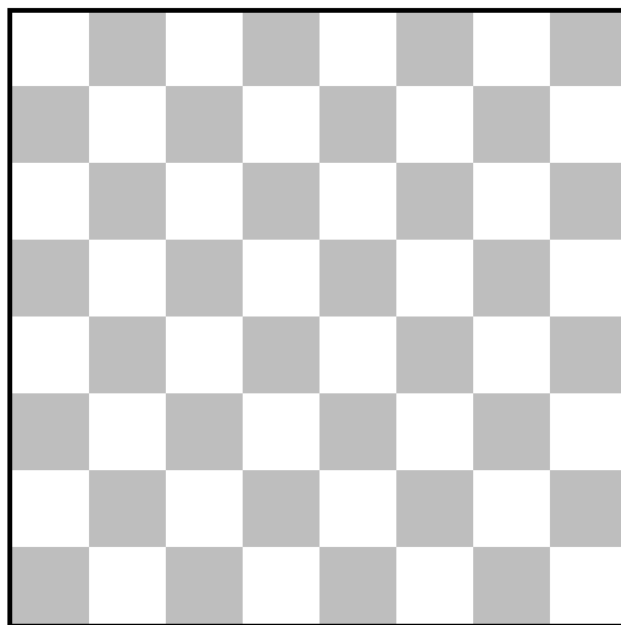
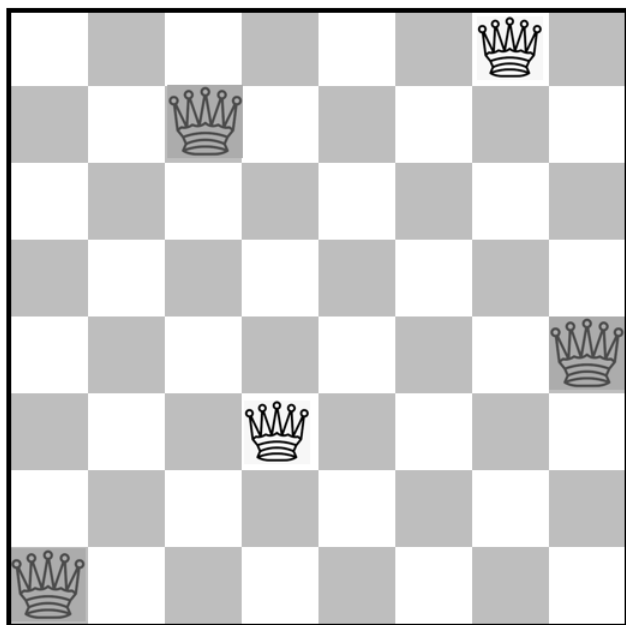


# APSU Math Problem of the Week

## Problem #4: Total Domination by Queens

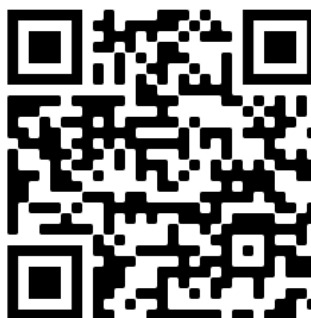
Submission Deadline: 9/23/2021 by 12pm to  
Dr. Brad Fox in MMCS 109 or by email to [foxb@apsu.edu](mailto:foxb@apsu.edu)

The Queens Domination Problem consists of finding the minimum number of queens (a piece which can move horizontally, vertically, and diagonally) required to either attack or occupy every square of the  $8 \times 8$  chessboard. It's been shown that at least 5 queens are needed, with an example shown on the left. Your goal is to place the fewest queens you can so that **every** space on the board can be attacked, including the squares occupied by each of your queens. The winner will be whoever can accomplish this with the fewest queens (or randomly selected from those that tie).



Feel free to take this printout, or find each Problem of the Week by scanning this:

Complete the problem each week for a chance to win a prize



Rules:

1. Any APSU student can submit a solution individually, or work can be done in a small group of 2 or 3 students.
2. Solutions must be justified when appropriate to be considered correct (but not for this problem).
3. Submissions can be made to Dr. Brad Fox (MMCS 109) or electronically to [foxb@apsu.edu](mailto:foxb@apsu.edu)
4. Problems will be posted each Friday afternoon with submissions due by the following Friday at 12pm. Solutions and the weekly winner will be posted once the deadline has passed.
5. One correct submission (whether submitted individually or as a group) will be randomly chosen to win a prize such as gift cards, Galois Math Club t-shirts, and APSU CoSTEM swag, in addition to receiving the glory of having their success published on this webpage.
6. Faculty and other non-students can submit solutions, but are not eligible for prizes.