

Checkerboard Borders

A Develop Understanding Task

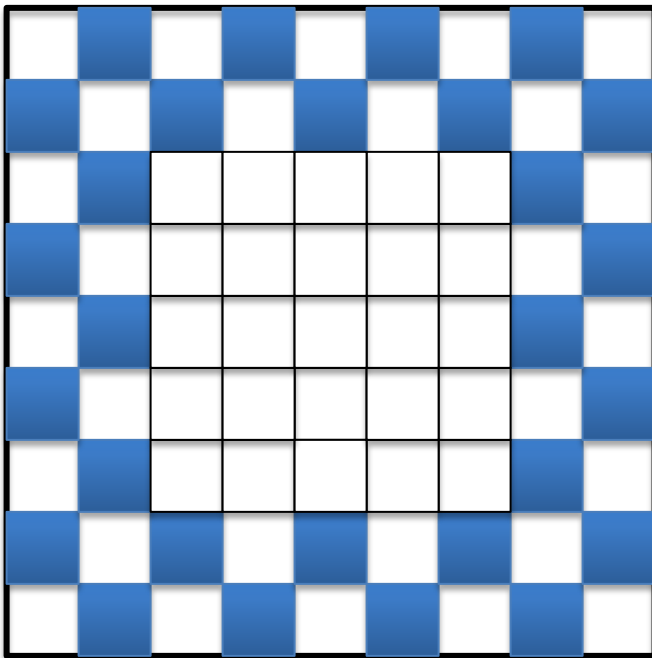
In preparation for back to school, the school administration has planned to replace the tile in the cafeteria. They would like to have a checkerboard pattern of tiles two rows wide as a surround for the tables and serving carts.



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Below is an example of the border that the administration is thinking of using to surround a square 5 x 5 set of tiles.

- A. Find the number of colored tiles in the checkerboard border. Track your thinking and find a way of calculating the number of color tiles in the border that is quick and efficient. Be prepared to share your strategy and justify your work.



- B. The contractor that was hired to lay the tile in the cafeteria is trying to generalize a way to calculate the number of colored tiles needed for a checker board border surrounding a square of tiles with dimensions $S \times S$. Find an expression for the number of colored border tiles needed for any $S \times S$ square center.

