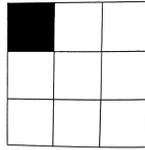


## Problems November 15, 2020

1. In a  $3 \times 3$  table one of the corner squares is colored black and the others are white. You are allowed to “recolor” any row or column, meaning that you change the color of all the boxes in a given row or column. Prove that it is impossible to use these recoloring operations to make all the boxes white.



2. You have three piles of candy, with 4, 5, and 6 pieces. Each turn, you can add one piece of candy to two of the piles. Can you do this a number of times to end up with three piles that contain 400, 500, and 600 pieces of candy?