Tiling a $2^n \times 2^n$ board with triominos
M117, October 7, 2011 (due October 10, 2011)

Your name: ________________________________

(1) Cross out one square on the first board below and challenge your partner to tile the remaining squares with “triominos”.
(2) Then let your partner cross out a square on the second board and see if you can tile it with “triominos”.
(3) The last two squares give each of you one more chance to try to stump your partner by strategically crossing out a square so that your partner can’t tile the remaining squares with triominos.
(4) Is it possible to create a $4 \times 4$ board with one square removed whose remaining squares cannot be tiled with triominos? (If so, provide an example. If not, explain why not.)
Now try to strategically cross out a square on an $8 \times 8$ board so that your partner can’t tile the remaining squares with triominos. Is it possible to stump your partner, or will there always be a way to tile an $8 \times 8$ board with one square missing using triominos?