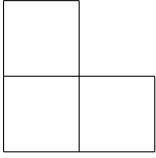
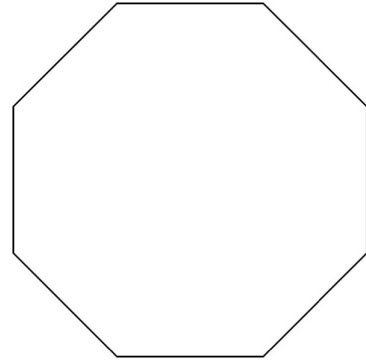


UW Math Circle
February 19, 2015

1. Trominoes, revisited! A tromino is an L-shaped piece, drawn below. Is it possible to cover an $2^n \times 2^n$ chessboard with *any* square removed with trominoes?



2. Prove that the sum of degrees of the interior angles of an n -gon is $(n - 2)180$.



3. Prove that $7^n - 1$ is a multiple of 6 for all positive integers n .
4. Prove that the number $111 \dots 111$ (3^n 1's) is divisible by 3^n .
5. Find a formula for the number of ways to cover a $2 \times n$ chessboard with dominoes (so that each square is covered, and no dominoes overlap). Prove your formula is correct.