

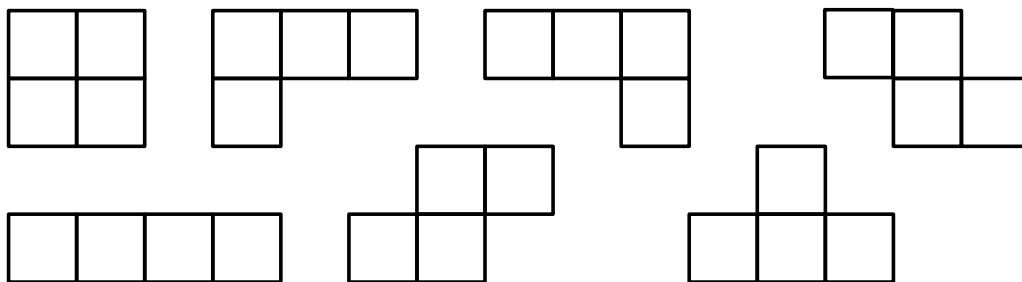
**MATH-CCTH 1080H – Mathematics for Everyday Life**  
TRENT UNIVERSITY, Winter 2018 in Peterborough

**Assignment #10**

**Tetrominoes**

*Due on Tuesday, 3 April.*

*Tetrominoes* are shapes obtained by glueing four  $1 \times 1$  squares together full edge to full edge. In some cases, such as the game *Tetris*, two tetrominoes that can be made congruent via rotations are considered to be the same, but reflections (*i.e.* flips) are not allowed. This gives ~~five~~ seven different tetrominoes:



1. Show how to completely cover an  $8 \times 8$  square with non-overlapping tetrominoes, using each tetromino at least once and without having any extend beyond the  $8 \times 8$  square, or explain why no such covering can exist. [5]
2. Show how to completely cover a  $9 \times 10$  rectangle with non-overlapping tetrominoes, using each tetromino at least once and without having any extend beyond the  $9 \times 10$  rectangle, or explain why no such covering can exist. [5]