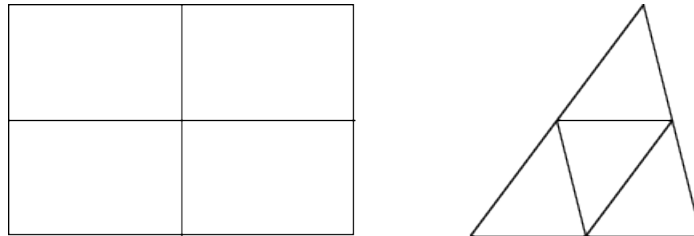


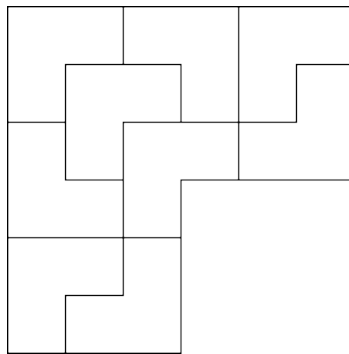
Mathematics 1100Y – Calculus I: Calculus of one variable
TRENT UNIVERSITY, SUMMER 2011

Assignment #5
Reptiles play Tetris?
Due on Monday, 13 June, 2011.

A *reptile* is a shape which can be subdivided in one or more ways into a (finite!) number of identical smaller copies of itself. For two easy examples, a rectangle or a triangle is a reptile because each can be divided into four identical smaller copies of itself:

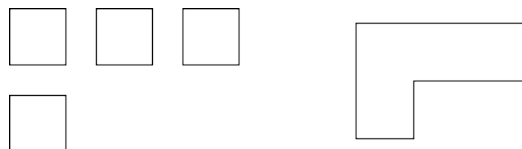


The L-shaped *tromino* (a shape obtained by sticking three squares edge-to-edge) is also a reptile because it can be subdivided into nine identical smaller copies of itself:



Note that one can flip and rotate the identical copies, but cannot have them overlap, and that they must completely subdivide the shape.

The L-shaped *tetromino* is obtained by sticking four squares together:



1. Show that the L-shaped tetromino is a reptile by finding a subdivision of it into some finite number of identical smaller copies of itself. [10]