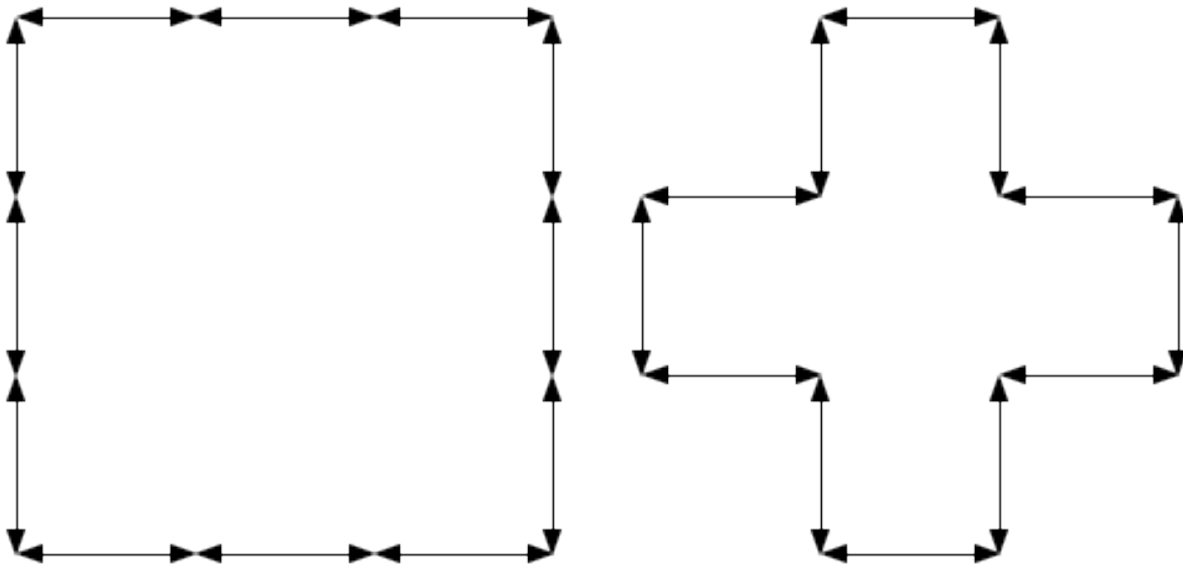


Mathematics 1100Y – Calculus I: Calculus of one variable  
TRENT UNIVERSITY, SUMMER 2011

Assignment #3  
Twelve to four

*Due on Monday, 30 May, 2011.*

Given twelve identical sticks, each of unit length, it is possible to place them on a flat surface in various ways to form (the perimeters of) polygons (which need not be regular) with integer areas. The figure below shows two such polygons: a square of area nine and a cross with area five.



1. Use all twelve sticks to form (the perimeter of) a polygon of area four. The entire length of each stick must be used, but you can orient them any way you like. [10]

This problem was adapted from one given by Martin Gardner in one of his *Mathematical Recreations* columns from *Scientific American*.