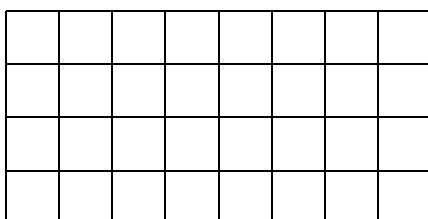
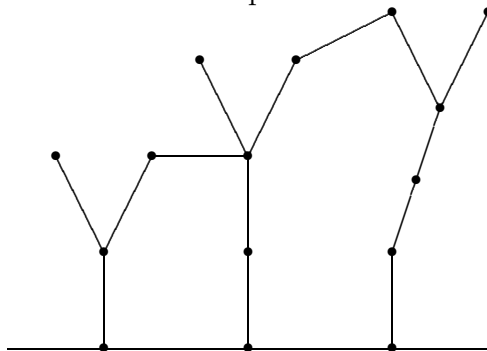


Sixth Annual Nim/Hackenbush/Grundy/Kayles Brawl

1.  $G_1 = N(24; 2, 3, 5, 7, 11)$
2.  $G_2 = N(20; 1, 2, 4, 8, 16)$
3.  $G_3 = N(128; 1, 4, 16, 64)$
4.  $G_4 = K(35)$ ; that is, Kayles with one string of 35 consecutive pins.
5.  $G_5 = \text{Grundy}(35)$
6.  $G_6 = \text{Cram}(4 \times 8)$  with **straight triominoes**; that is, Cram on the board



7.  $G_7 = W(18, 17)$ ; Whytoff’s game. That is, players can remove any number of counters from one pile or the same number from both piles.
8.  $G_8$  is a multiplication game that begins with 1. A move consists in multiplying the current value by 2, 3, or 4. The game ends when the value reached is 1000 or more.
9.  $G_9$  is Green Hackenbush with the landscape shown below:



10.  $G_{10}$  is the two pile games  $TP(15, 15)$  with the rule that each move reduces one pile by two and at the same time decreases or *increases* the other pile by 1.

The contest game is

$$G_1 \oplus G_2 \oplus G_3 \oplus G_4 \oplus G_5 \oplus G_6 \oplus G_7 \oplus G_8 \oplus G_9 \oplus G_{10}$$