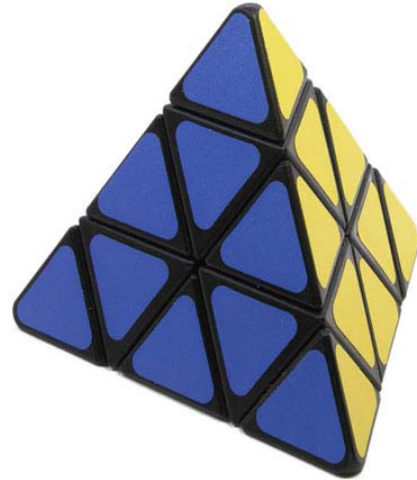
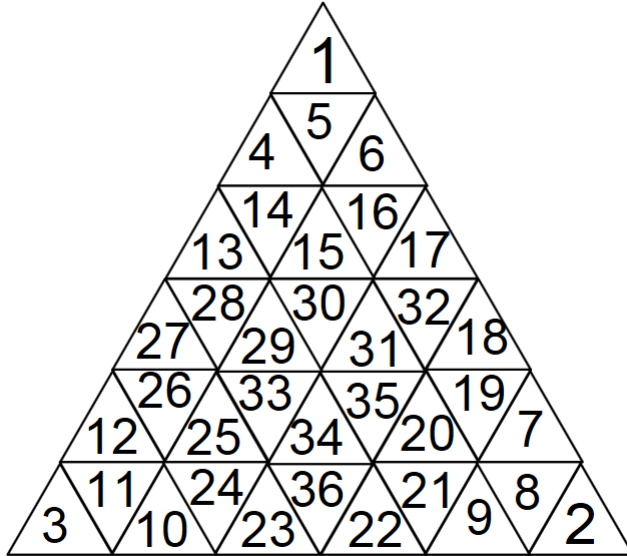


# MAT1100H HW1

Adam Wisniewski

## Part I: Pyramnix



```
n = 36;
g1 = Cycles[{{1, 2, 3}}];
g2 = Cycles[{{32, 18, 17}}];
g3 = Cycles[{{11, 5, 8}, {10, 4, 7}, {12, 6, 9}}];
g4 = Cycles[{{31, 19, 16}, {30, 20, 6}, {35, 7, 15}}];
g5 = Cycles[{{13, 18, 23}, {14, 19, 24}, {15, 20, 25}, {16, 21, 26}, {17, 22, 27}, {28, 32, 36}, {29, 31, 34},
g6 = Cycles[{{28, 22, 1}, {29, 21, 5}, {33, 9, 4}, {34, 8, 14}, {36, 2, 13}, {27, 23, 3}, {26, 24, 11}, {12, 25, 10}}];
r_ = t_ := PermutationProduct[t, r];
Feed[Cycles[{}]] := Null;
Feed[t_] := Module[{i, j, k, l},
  i = Min[PermutationSupport[t]];
  j = PermutationReplace[i, t];
  If[Head[r1, j] == Cycles,
    Feed[InversePermutation[r1, j] ° t],
    (*Else*) r1, j = t;
  For[k = 1, k < n, ++k,
    For[l = k + 1, l ≤ n, ++l,
      If[Head[rk, l] == Cycles,
        Feed[r1, j ° rk, l]; Feed[rk, l ° r1, j]
      ]
    ]
  ];
$RecursionLimit = ∞;

Table[Feed[g_n]; ∏_{i=1}^n (1 + Count[Range[n], j_ /; Head[r1, j] == Cycles]), {α, 6}]

{3, 9, 27, 4860, 226748160, 906992640}
```