# Output sequences for Maple code (extended)

**(*More sequences to be added)**

**King's Tour:**

- The sequence for the total number of hamiltonian cycles for a 3 x n board

  > seq(nops(KiTours(3, i))/2, i = 1 .. 20)

  > 0, 4, 16, 120, 744, 4922, 31904, 208118, 1354872, 8826022, 57483536, 374412158, 2438639080, 15883563110, 103454037120, 673825180718, 4388811619032, 28585557862518, 186185731404016, 1212679737590398

- Generating Function for (3 x n) board:

  [-(6*x^5 + 8*x^4 + 4*x^3 - 4*x)/(-6*x^4 - 8*x^3 - 15*x^2 - 4*x + 1), ogf]

- This sequence is not found on OEIS

- The sequence for the total number of hamiltonian cycles for a 2 x n board

  > seq(nops(KiTours(2, i))/2, i = 2 .. 13)

  > 3, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096

- Generating Function for (2 x n) board:

  [-(-3 + 2*x)/(-2*x + 1), ogf]

- OEIS A-number := A198633

**Knight's Tour:**

- The sequence for the total number of hamiltonian cycles for a 3 x n board

  > seq(nops(KtTours(3,i)/2,i=1..28)

  > 0, 0, 0, 0, 0, 0, 0, 0, 0, 16, 0, 176, 0, 1536, 0, 15424, 0, 147728, 0, 1448416, 0, 14060048, 0, 136947616, 0, 1332257856, 0, 12965578752

- Generating Function for 3 x n board:

  16 * (z^5 + 5*z^6 - 34*z^7 - 116*z^8 + 505*z^9 + 616*z^10 - 3179*z^11 - 4*z^12 + 9536*z^13 - 8176*z^14 - 13392*z^15 + 15360*z^16 + 13888*z^17 + 2784*z^18 - 3328*z^19 - 22016*z^20 + 5120*z^21 + 2048*z^22) / (1 - 6*z - 64*z^2 + 200*z^3 + 1000*z^4 - 3016*z^5 - 3488*z^6 + 24256*z^7 - 23776*z^8 - 104168*z^9 + 203408*z^10 + 184704*z^11 - 443392*z^12 - 14336*z^13 + 151296*z^14 - 145920*z^15 + 263424*z^16 - 317440*z^17 - 36864*z^18 + 966656*z^19 - 573440*z^20 - 131072*z^21)

- OEIS A-number := A169764

- The sequence for the total number of hamiltonian cycles for a 2 x n board
  > seq(nops(KtTours(2, i))/2, i = 1 .. 20);
  > 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0

**Queen's Tour:**

- The sequence for the total number of hamiltonian cycles for a 3 x n board
  > seq(nops(QiTours(3, i))/2, i = 1 .. 4)
  > 0,24,1960,243040

- This sequence is not found on OEIS

- The sequence for the total number of hamiltonian cycles for a 2 x n board
  > seq(nops(QiTours(2, i))/2, i = 2 .. 9)
  > 3,24,108,522,2646,13150,65206,324370

- This sequence is not found on OEIS

**Rook's Tour:**

- The sequence for the total number of hamiltonian cycles for a 3 x n board
  > seq(nops(RiTours(3, i))/2, i = 1 .. 7)
  > 0, 6, 96, 3132, 84192, 1821912, 37359444

- This sequence is not found on OEIS

- The sequence for the total number of hamiltonian cycles for a 2 x n board
  > seq(nops(RiTours(2, i))/2, i = 1 .. 13)
  > 1, 2, 6, 20, 48, 126, 348, 936, 2512, 6788, 18322, 49406, 133296

- This sequence is not found on OEIS

**Bishop's Tour:** The bishop never makes a hamiltonian cycle because its diagonal path can only reach half of the vertices

- The sequence for the total number of hamiltonian cycles for a 3 x n board
  > seq(nops(BiTours(3, i))/2, i = 1 .. 15)
  > 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0

- The sequence for the total number of hamiltonian cycles for a 3 x n board
  > seq(nops(BiTours(2, i))/2, i = 1 .. 15);
  > 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0