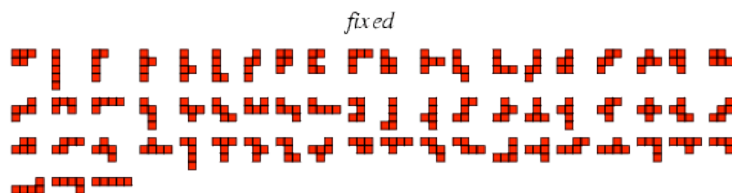
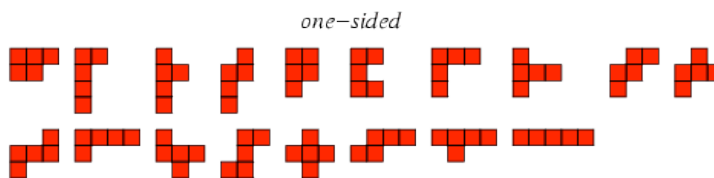
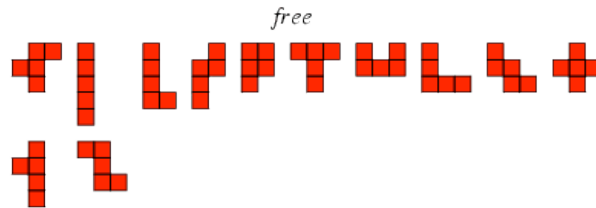


Discrete Mathematics > Combinatorics > Lattice Paths and Polygons > Polyominoes

Pentomino

 [COMMENT On this Page](#)  [DOWNLOAD Mathematica Notebook](#)



A pentomino is a 5-polyomino. There are 12 [free](#) pentominoes, 18 one-sided pentominoes, and 63 [fixed](#) pentominoes. The twelve free pentominoes are known by the letters of the alphabet they most closely resemble: *f, i, l, n, p, t, u, v, w, x, y,* and *z* (Gardner 1960, Golomb 1995). Another common naming convention replaces *f, i, l, n,* and *p* with *R, Q, Q,* and *S* so that all letters from *Q* to *Z* are used (Berlekamp *et al.* 1982). In particular, in the [life cellular automaton](#), the *f*-pentomino is always known as the *r*-pentomino. The *i, l,* and *t* pentominoes can also be called the [straight pentomino](#), [L-pentomino](#), and [T-pentomino](#), respectively.

[SEE ALSO:](#) [Domino](#), [Hexomino](#), [Heptomino](#), [Octomino](#), [Polyomino](#), [Tetromino](#), [Triomino](#). [[Pages Linking Here](#)]

REFERENCES:

Ball, W. W. R. and Coxeter, H. S. M. *Mathematical Recreations and Essays, 13th ed.* New York: Dover, pp. 110-111, 1987.

Berlekamp, E. R.; Conway, J. H; and Guy, R. K. *Winning Ways for Your Mathematical Plays, Vol. 1: Adding Games, 2nd ed.* Wellesley, MA: A K Peters, 2001.

Berlekamp, E. R.; Conway, J. H; and Guy, R. K. *Winning Ways for Your Mathematical Plays, Vol. 2: Games in Particular.* London: Academic Press, 1982.

Dudeney, H. E. "The Broken Chessboard." Problem 74 in *The Canterbury Puzzles and Other Curious Problems, 7th ed.* London: Thomas Nelson and Sons, pp. 119-120, 1949.

Gardner, M. "Mathematical Games: About the Remarkable Similarity between the Icosian Game and the Towers of Hanoi." *Sci. Amer.* **196**, 150-156, May 1957.


Gardner, M. "Mathematical Games: More About the Shapes that Can Be Made with Complex Dominoes." *Sci. Amer.* **203**, 186-198, Nov. 1960.


Golomb, S. W. *Polyominoes: Puzzles, Patterns, Problems, and Packings, 2nd ed.* Princeton, NJ: Princeton University Press, 1995.

Hunter, J. A. H. and Madachy, J. S. *Mathematical Diversions.* New York: Dover, pp. 80-86, 1975.

Other Wolfram Sites:

- [Wolfram Research](#)
- [Demonstrations Site](#)
- [Integrator](#)
- [Tones](#)
- [Functions Site](#)
- [Wolfram Science](#)
- [more...](#)

 [Download Mathematica Player >>](#)

 [Complete Mathematica Documentation >>](#)

Show off your math savvy with a [MathWorld T-shirt](#).

Introducing a computing revolution...
MATHEMATICA REINVENTED >>

New! [Interactive mathematics](#)

 [Wolfram Demonstrations Project >>](#)



[\[UPDATE THIS LINK\]](#) Lei, A. "Pentominoes." <http://www.cs.ust.hk/~philip1/omino/pento.html>.

Madachy, J. S. "Pentominoes: Some Solved and Unsolved Problems." *J. Rec. Math.* **2**, 181-188, 1969.

O'Beirne, T. H. "Pentominoes and Hexiamonds." *New Scientist* **12**, 379-380, 1961.

Ruskey, F. "Information on Pentomino Puzzles."
<http://www.theory.csc.uvic.ca/~cos/inf/misc/PentInfo.html>.

Smith, A. "Pentomino Relationships." <http://www.snaffles.demon.co.uk/pentanomes/>.

Verbuyst, C. "Pentomino." <http://home.planetinternet.be/~odettedm/>.

LAST MODIFIED: May 17, 2003

CITE THIS AS:

Weisstein, Eric W. "Pentomino." From *MathWorld*--A Wolfram Web Resource.
<http://mathworld.wolfram.com/Pentomino.html>

© 1999 CRC Press LLC, © 1999-2007 Wolfram Research, Inc. | [Terms of Use](#)