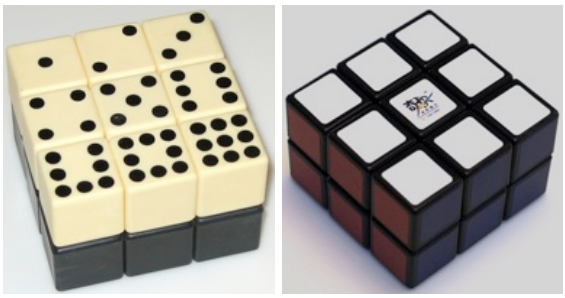
Rubik's 2x3x3 Domino



Designed by Erno Rubik 1983; left purchased circa 1985; right purchased 2009.
(plastic, 1.5 inches high by 2.25 inches square)

Put the numbers in order on both sides.

Notation: R for a flip of the right side, U, D for clockwise rotations of the up and down faces (- for counterclockwise, and 2 to do it twice). We also use M to denote rotating the whole puzzle 90 degrees clockwise (with respect to looking down), as a convenience so that only right flips are needed (easier to hold and also useful for the solution to *Rubik 3x3x4*).

Move pieces to their correct layers:

1. Repeatedly position pairs of edges on the wrong layers on the right and do R.
2. Repeatedly position two corners on the wrong layers at the front right and do:

   Exchange FRU and FRD: **R U R U- R**

Solve the two layers independently:

3. Use this to permute corners; X = Step 2 transformation, Y = reverse of X:

   Exchange URF and URB: **X M- Y D-**

4. Use this to permute edges:

   Exchange UF and UR: **(R U)^2 (R U2)^2 X**

Jaap's Page presents the transformations above (and others for faster solving), as well as the following transformation to change a side to its mirror image (F denotes a front flip):

R F U- F U2 R (U F)^2 U2 R U- F R

Further reading:
Jaap's Page, from: http://www.jaapsch.net/puzzles/domino.htm
McFarren's Page, from: http://www.geocities.com/abcmcfarren/math/rdml/rubdom1.htm