## Block Ten



Designed by Minoru Abe 1979, this puzzle made by J. A. Storer 2007. (cardboard sleeve, wood tray, plexiglass keeper, and 9 wood pieces, $6^{\prime \prime}$ x 7" x 3/4", tray cherry, $2 \times 2$ walnut, L's purple heart, 1x2's bloodwood, 1x1's rosewood, sleeve shows 45 problems - 12 on top and the remaining 33 on the bottom)
Starting from various positions on the 6 by 4 unit tray, the goal is to move the $2 \times 2$ piece to the top. The two 1 x 1 pieces painted black are glued to the tray and cannot move. The following page show a variety of starting positions; of these positions $17,20,32,35,40$, and 45 are symmetric ones; here they are in increasing order of the number of rectilinear moves required, along with six examples of non-symmetric positions:


Problem 40
26 moves


Problem 41 21 moves


Problem 35 41 moves


Problem 25
33 moves


Problem 20
49 moves


Problem 42
43 moves


Problem 44 76 moves


Problem 12 51 moves


Problem 17
81 moves


Problem 45
67 moves


Problem 32
87 moves


Problem 30
75 moves

## Block Ten Problems

Problems 1 through 20 are on the Minoru Abe directions, 21 to 29 are problems D28, D29, D30, D32, D33, D34, D38, D39, D41 from pages 113-116 of the Hordern book (problems D24, D25, D26, D27, D31, D35, D36, D37, D40, D42, D43 correspond to problems 1, 6, 3, 12, 5, 11, 4, 13, 10, 15, 19), 30, 31, 32 are the three Henderson problems shown on the Fujiwara page, and 33 to 45 are Fujiwara's problems 1, 3-10, 12-15 (the Abe problems A-D shown on that page correspond to problems 13, 14, 12, 11, and Fujiwara problems 2, 11 correspond to 20, 17).


## Block Ten Made In Japan



## Minoru Original Sliding Block Puzzle Block 10



Designed by Minoru Abe 1979, purchased in Japan 2010.
(wood pieces ina cardboard box, 6" x 4.4" x 7/8")

## Solution To Block Ten Abe Problems 1 \& 2

Here is a 26 rectilinear moves ( 35 straight-line moves) solution to the first of the problems in the Abe directions:

| \$ \$ | \$ 1 \$ | \$ 1 \$ | \$ 1 \$ | \$ 1 \$ | \$ 1 \$ | \$ 1 \$ | \$ 1 \$ | \$ 1 \$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 D | D | A A D | A A D | A A D B | A A D B | A A D B | A A D B | A A D B |
| A A D D | A A D D | D D | D D | D D B | D D B | D D B | D D B | D D B |
| C C 2 B | C C 2 B | C C 2 B | C C 2 B | C C 2 | C C 24 | C C 24 | C C 24 | 24 |
| C X X B | C X X B | C X X B | C X X B | C X X | C X X | C XX | C XX | C C X X |
| $3 \times \mathrm{X} 4$ | $3 \times \mathrm{X} 4$ | $3 \times \mathrm{X} 4$ | $3 \times 14$ | 3 XX 4 | 3 XX | 3 XX | 3 x X | C 3 XX |
| \$ 1 \$ | \$ 1 \$ | \$ 1 B \$ | \$ 1 B \$ | \$ 1 B \$ | \$ 1 B \$ | \$ 1 B \$ | \$ 11 B \$ | \$ 1 B \$ |
| A A D B | A A B | A A B | A A B 4 | A A B 4 | A A B 4 | A A B 4 | A A B 4 | A A B 4 |
| 2 D D B | 2 D B | 2 D | 2 D | 2 D X X | 2 D X X | 2 D X X | 2 X X | X X |
| 4 | D D 4 | D D 4 | D D | D D X X | D D X X | D D X X | X X | X X |
| C C X X | C C X X | C C X X | C C X X | C C | C C | C C | D C C | 2 DCC |
| C 3 XX | C 3 XX | C 3 XX | C 3 XX | C 3 | C 3 | C 3 | D D C 3 | D D C 3 |
| \$ 1 B \$ | \$ B \$ | \$ B \$ | \$ B 4 \$ | \$ B 4 \$ | \$ B 4 \$ | \$ 4 \$ | \$ \$ | \$ X X \$ |
| B 4 | 1 B 4 | 1 B 4 | 1 B | 1 BXX | 1 B X X | $1 \mathrm{X} \times$ | $1 \mathrm{X} \times$ | $1 \mathrm{X} \times$ |
| X X | X X | X X | X X |  |  | B X X | B X X | B |
| A A X X | A A X X | A A X X | A A X X | A A | A A | B A A | B 4 A A | B 4 A A |
| 2 DCC | 2 D C C | 2 D C C | 2 DCC | 2 D C C | 2 D C C | 2 D C C | 2 DCC | 2 DCC |
| D D C 3 | D D C 3 | D D C 3 | D D C 3 | D D C 3 | D D C 3 | D D C 3 | D D C 3 | D D C 3 |

Here is a 28 rectilinear moves ( 39 straight-line moves) solution to the second of the problems in the Abe directions:


## Solution To Block Ten Abe Problem 25

Here is an 87 rectilinear moves ( 117 straight-line moves) to the last of the problems in the Abe directions (it can also be done in 115 straight-line moves that are equivalent to 89 rectilinear moves):


## Further reading:

Fujiwara's Pages, from:
http://www.pro.or.jp/~fuji/java/puzzle/slide/V2.0/block10-eng.html http://www.pro.or.jp/~fuji/java/puzzle/slide/V2.0/block10.html

