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8 puzzle problem

Syntax:

(astar start-node goal-node)

To Run:

(astar ‘(E 1 3 4 2 5 7 8 6) ‘(1 2 3 4 5 6 7 8 E) )

The result is:

"The states change as follows:"
((E 1 3 4 2 5 7 8 6) (1 E 3 4 2 5 7 8 6) (1 2 3 4 E 5 7 8 6)
(1 2 3 4 5 E 7 8 6) (1 2 3 4 5 6 7 8 E))
"Length of optimal path"
5

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Missionaries and Cannibals :

Syntax to run :

(missionaries no-of-missionaries no-of-cannibals boat-capacity)

Run the following:

(missionaries 15 15 6)
The output is:

(missionaries 15 15 6)
lc: 0 lm: 0 || (bc: 6 bm: 0) || rc: 9 rm: 15
lc: 6 lm: 0 || (bc: 0 bm: 0) || rc: 9 rm: 15
lc: 5 lm: 0 || (bc: 1 bm: 0) || rc: 9 rm: 15
lc: 5 lm: 0 || (bc: 0 bm: 0) || rc: 10 rm: 15
lc: 5 lm: 0 || (bc: 0 bm: 5) || rc: 10 rm: 10
lc: 5 lm: 5 || (bc: 0 bm: 0) || rc: 10 rm: 10
lc: 4 lm: 4 || (bc: 1 bm: 1) || rc: 10 rm: 10

lc: 4 lm: 4 ||  (bc: 0 bm: 0) || rc: 11 rm: 11
lc: 4 lm: 4 ||  (bc: 3 bm: 3) || rc: 8 rm: 8
lc: 7 lm: 7 || (bc: 0 bm: 0)  || rc: 8 rm: 8
lc: 6 lm: 6 || (bc: 1 bm: 1)  || rc: 8 rm: 8
lc: 6 lm: 6 ||  (bc: 0 bm: 0) || rc: 9 rm: 9
lc: 6 lm: 6 ||  (bc: 3 bm: 3) || rc: 6 rm: 6
lc: 9 lm: 9 || (bc: 0 bm: 0)  || rc: 6 rm: 6
lc: 8 lm: 8 || (bc: 1 bm: 1)  || rc: 6 rm: 6
lc: 8 lm: 8 ||  (bc: 0 bm: 0) || rc: 7 rm: 7
lc: 8 lm: 8 ||  (bc: 3 bm: 3) || rc: 4 rm: 4
lc: 11 lm: 11 || (bc: 0 bm: 0)  || rc: 4 rm: 4
lc: 10 lm: 10 || (bc: 1 bm: 1)  || rc: 4 rm: 4
lc: 10 lm: 10 ||  (bc: 0 bm: 0) || rc: 5 rm: 5
lc: 10 lm: 10 ||  (bc: 3 bm: 3) || rc: 2 rm: 2
lc: 13 lm: 13 || (bc: 0 bm: 0)  || rc: 2 rm: 2
lc: 12 lm: 12 || (bc: 1 bm: 1)  || rc: 2 rm: 2
lc: 12 lm: 12 ||  (bc: 0 bm: 0) || rc: 3 rm: 3
lc: 12 lm: 12 ||  (bc: 3 bm: 3) || rc: 0 rm: 0
lc: 15 lm: 15 || (bc: 0 bm: 0)  || rc: 0 rm: 0

(missionaries 24 24 6)
The output is:

(missionaries 24 24 6)
lc: 0 lm: 0 ||  (bc: 6 bm: 0) || rc: 18 rm: 24
lc: 6 lm: 0 || (bc: 0 bm: 0)  || rc: 18 rm: 24
lc: 5 lm: 0 || (bc: 1 bm: 0)  || rc: 18 rm: 24
lc: 5 lm: 0 ||  (bc: 0 bm: 0) || rc: 19 rm: 24
lc: 5 lm: 0 ||  (bc: 0 bm: 5) || rc: 19 rm: 19
lc: 5 lm: 5 || (bc: 0 bm: 0)  || rc: 19 rm: 19
lc: 4 lm: 4 || (bc: 1 bm: 1)  || rc: 19 rm: 19
lc: 4 lm: 4 ||  (bc: 0 bm: 0) || rc: 20 rm: 20
lc: 4 lm: 4 ||  (bc: 3 bm: 3) || rc: 17 rm: 17
lc: 7 lm: 7 || (bc: 0 bm: 0)  || rc: 17 rm: 17
lc: 6 lm: 6 || (bc: 1 bm: 1)  || rc: 17 rm: 17
lc: 6 lm: 6 ||  (bc: 0 bm: 0) || rc: 18 rm: 18
lc: 6 lm: 6 ||  (bc: 3 bm: 3) || rc: 15 rm: 15
lc: 9 lm: 9 || (bc: 0 bm: 0)  || rc: 15 rm: 15
lc: 8 lm: 8 || (bc: 1 bm: 1)  || rc: 15 rm: 15
lc: 8 lm: 8 ||  (bc: 0 bm: 0) || rc: 16 rm: 16
lc: 8 lm: 8 ||  (bc: 3 bm: 3) || rc: 13 rm: 13
lc: 11 lm: 11 || (bc: 0 bm: 0)  || rc: 13 rm: 13
lc: 10 lm: 10 || (bc: 1 bm: 1)  || rc: 13 rm: 13
lc: 10 lm: 10 ||  (bc: 0 bm: 0) || rc: 14 rm: 14
lc: 10 lm: 10 ||  (bc: 3 bm: 3) || rc: 11 rm: 11
lc: 13 lm: 13 || (bc: 0 bm: 0)  || rc: 11 rm: 11

lc: 12 lm: 12 || (bc: 1 bm: 1) || rc: 11 rm: 11
lc: 12 lm: 12 || (bc: 0 bm: 0) || rc: 12 rm: 12
lc: 12 lm: 12 || (bc: 3 bm: 3) || rc: 9 rm: 9
lc: 15 lm: 15 || (bc: 0 bm: 0) || rc: 9 rm: 9
lc: 14 lm: 14 || (bc: 1 bm: 1) || rc: 9 rm: 9
lc: 14 lm: 14 || (bc: 0 bm: 0) || rc: 10 rm: 10
lc: 14 lm: 14 || (bc: 3 bm: 3) || rc: 7 rm: 7
lc: 17 lm: 17 || (bc: 0 bm: 0) || rc: 7 rm: 7
lc: 16 lm: 16 || (bc: 1 bm: 1) || rc: 7 rm: 7
lc: 16 lm: 16 || (bc: 0 bm: 0) || rc: 8 rm: 8
lc: 16 lm: 16 || (bc: 3 bm: 3) || rc: 5 rm: 5
lc: 19 lm: 19 || (bc: 0 bm: 0) || rc: 5 rm: 5
lc: 18 lm: 18 || (bc: 1 bm: 1) || rc: 5 rm: 5
lc: 18 lm: 18 || (bc: 0 bm: 0) || rc: 6 rm: 6
lc: 18 lm: 18 || (bc: 3 bm: 3) || rc: 3 rm: 3
lc: 21 lm: 21 || (bc: 0 bm: 0) || rc: 3 rm: 3
lc: 20 lm: 20 || (bc: 1 bm: 1) || rc: 3 rm: 3
lc: 20 lm: 20 || (bc: 0 bm: 0) || rc: 4 rm: 4
lc: 20 lm: 20 || (bc: 3 bm: 3) || rc: 1 rm: 1
lc: 23 lm: 23 || (bc: 0 bm: 0) || rc: 1 rm: 1
lc: 22 lm: 22 || (bc: 1 bm: 1) || rc: 1 rm: 1
lc: 22 lm: 22 || (bc: 0 bm: 0) || rc: 2 rm: 2
lc: 22 lm: 22 || (bc: 2 bm: 2) || rc: 0 rm: 0
lc: 24 lm: 24 || (bc: 0 bm: 0) || rc: 0 rm: 0