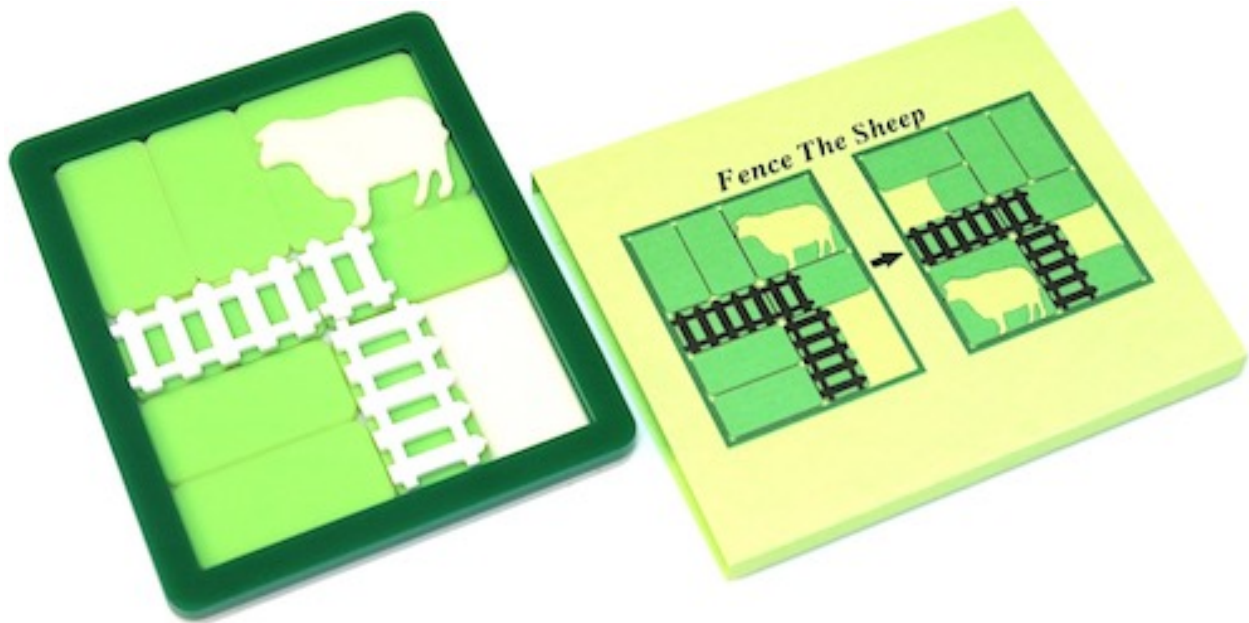


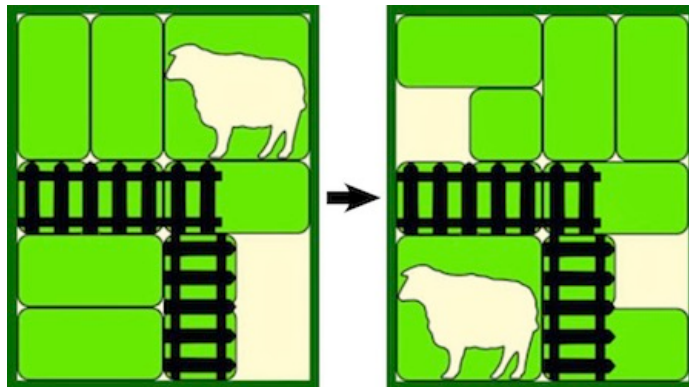
Fence The Sheep



*Designed and made by Diniar Namdarian, 2016; sleeve made by J. A. Storer.
(laser cut plastic, 5.75" high by 4.75" wide x 3/8" thick)*

A two layer puzzle where the left end of the 1x2 horizontal fence is attached to a 1x1 piece below (and the right end sits above a 1x1 piece), the 1x1 fence sits on top at the left end of a 1x2 piece, and the 2x1 vertical fence sits on top at the upper end of a 2x1 piece.

The problem is to move the sheep inside the fences:



The puzzle directions give a 168 moves solution; the following pages show the details of a 168 rectilinear moves solution.

The puzzle directions also note that an easier puzzle may be constructed by having the 1x1 fence sit on top of a 1x1 piece (and to the right of that piece is another 1x1 piece), and provides a 70 moves solution; the following pages show the details of a 70 rectilinear moves solution.

Notation Used for the Fence The Sheep Solutions

In the solutions to follow, for each position, the bottom layer is to the left of the vertical row of \$'s, and the top layer is to the right. For example, here are steps 0 to 3 of the Fence The Sheep solution:

0:

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A B X X $      X X
A B X X $      X X
F 1 G G $ F F G
C C H   $      H
D D 2   $      H

```

1. Move H east:

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A B X X $      X X
A B X X $      X X
F 1 G G $ F F G
C C   H $      H
D D 2   $      H

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2. Move 2 north:

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A B X X $      X X
A B X X $      X X
F 1 G G $ F F G
C C 2 H $      H
D D     $      H

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3. Move D east 2 units:

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A B X X $      X X
A B X X $      X X
F 1 G G $ F F G
C C 2 H $      H
      D D $      H

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Fence The Sheep Solution

Here is every 3rd step of a 168 rectilinear moves (178 straight-line moves) solution.

0: A B X X \$ X X A B X X \$ X X F 1 G G \$ F F G C C H \$ H D D 2 \$ H	3. Move D: A B X X \$ X X A B X X \$ X X F 1 G G \$ F F G C C 2 H \$ H D D \$ H	6. Move 1: A B X X \$ X X A B X X \$ X X 1 G G \$ G F 2 H \$ F F H C C D D \$ H	9. Move 1: 1 A X X \$ X X 1 A X X \$ X X B G G \$ G F B 2 H \$ F F H C C D D \$ H	12. Move 2: 1 A X X \$ X X F A X X \$ F F X X B 2 G G \$ G B H \$ H C C D D \$ H
15. Move C: 1 A X X \$ X X F A X X \$ F F X X B 2 G G \$ G B H D D \$ H C C \$ H	18. Move A: 1 X X \$ X X F A X X \$ F F X X 2 A G G \$ G B H D D \$ H B C C \$ H	21. Move 2: F 1 X X \$ F F X X 2 A X X \$ X X B A G G \$ G B H D D \$ H B C C \$ H	24. Move D: F 1 X X \$ F F X X 2 A X X \$ X X B A G G \$ G B H \$ H C C D D \$ H	27. Move 1: F 1 2 \$ F F 2 A X X \$ X X B A X X \$ X X B H G G \$ H G C C D D \$ H
30. Move B: 2 F 1 \$ F F B A X X \$ X X B A X X \$ X X H G G \$ H G C C D D \$ H	33. Move 2: F 1 \$ F F B 2 X X \$ X X B A X X \$ X X H A G G \$ H G C C D D \$ H	36. Move A: F A 2 1 \$ F F B A X X \$ X X B X X \$ X X H G G \$ H G C C D D \$ H	39. Move D: F A 2 1 \$ F F B A X X \$ X X B H X X \$ H X X C C G G \$ H G D D \$ H	42. Move D: F A 2 1 \$ F F B A X X \$ X X B H X X \$ H X X D D C C \$ H G G \$ G
45. Move X: F A 2 1 \$ F F B A \$ F B H X X \$ H X X D D X X \$ H X X G G C C \$ G	48. Move F: F A 1 \$ F F B A 2 \$ H B H X X \$ H X X D D X X \$ H X X G G C C \$ G	51. Move D: B F A 1 \$ F F B H A 2 \$ H D D X X \$ H X X X X \$ X X G G C C \$ G	54. Move X: B F A 1 \$ F F B H A 2 \$ H D D \$ H G G X X \$ G X X C C X X \$ X X	57. Move 2: B F 1 2 \$ F F B H A \$ H D D A \$ H G G X X \$ G X X C C X X \$ X X
60. Move D: B F 2 \$ F F B H 1 A \$ H D D A \$ H G G X X \$ G X X C C X X \$ X X	63. Move H: H F 2 \$ H F F B 1 A \$ H B D D A \$ H G G X X \$ G X X C C X X \$ X X	66. Move A: H F 2 A \$ H F F B 1 A \$ H B D D \$ H G G X X \$ G X X C C X X \$ X X	69. Move H: F 2 A \$ F F H B 1 A \$ H B D D \$ H G G X X \$ G X X C C X X \$ X X	72. Move D: F B 2 A \$ F F H B 1 A \$ H D D \$ H G G X X \$ G X X C C X X \$ X X
75. Move B: F B A \$ F F H B A \$ H D D 2 1 \$ H G G X X \$ G X X C C X X \$ X X	78. Move D: H F B A \$ H F F D D B A \$ H 2 1 \$ H G G X X \$ G X X C C X X \$ X X	81. Move X: H F B A \$ H F F D D B A \$ H 2 1 X X \$ X X G G X X \$ G X X C C \$ H	84. Move 1: H F B A \$ H F F D D B A \$ H 2 X X \$ X X 1 X X \$ X X G G C C \$ G	87. Move B: H F B \$ H F F D D B \$ H 2 X X A \$ X X 1 X X A \$ X X G G C C \$ G
90. Move H: H F B \$ H F F D D B \$ H 2 X X A \$ X X 1 X X A \$ X X G G C C \$ G	93. Move X: 2 H F B \$ H F F 1 D D B \$ H X X A \$ X X X X A \$ X X G G C C \$ G	96. Move D: 2 H F \$ H F F 1 D D \$ H X X A B \$ X X X X A B \$ X X G G C C \$ G	99. Move H: H F \$ H F F 2 1 D D \$ H X X A B \$ X X X X A B \$ X X G G C C \$ G	102. Move 1: H F D D \$ H F F 2 1 \$ H X X A B \$ X X X X A B \$ X X G G C C \$ G
105. Move B: H D D B \$ H 2 F 1 B \$ H F F X X A \$ X X X X A \$ X X G G C C \$ G	108. Move F: H D D B \$ H 2 B \$ H X X F A \$ X X F F X X 1 A \$ X X G G C C \$ G	111. Move 2: 2 H B \$ H D D B \$ H X X F A \$ X X F F X X 1 A \$ X X G G C C \$ G	114. Move A: 2 H B \$ H D D B A \$ H X X F A \$ X X F F X X 1 \$ X X G G C C \$ G	117. Move B: 2 H \$ H D D B A \$ H X X B A \$ X X X X F 1 \$ X X F F G G C C \$ G
120. Move D: D D 2 H \$ H B A \$ H X X B A \$ X X X X F 1 \$ X X F F G G C C \$ G	123. Move C: D D 2 H \$ H X X B A \$ X X H X X B A \$ X X G G F 1 \$ G F F C C \$ H	126. Move G: D D 2 H \$ H X X B A \$ X X H X X B A \$ X X G G \$ G C C F 1 \$ F F	129. Move 2: 2 H \$ H D D B A \$ H X X B A \$ X X X X G G \$ X X G C C F 1 \$ F F	132. Move B: 2 H B A \$ H D D B A \$ H X X \$ X X X X G G \$ X X G C C F 1 \$ F F
135. Move F: 2 H B A \$ H D D B A \$ H X X G G \$ X X G X X F 1 \$ X X F F C C \$ H	138. Move G: 2 H B A \$ H D D B A \$ H G G \$ G X X F 1 \$ X X F F X X C C \$ X X	141. Move B: 2 H B \$ H D D B \$ H G G 1 A \$ G X X F A \$ X X F F X X C C \$ X X	144. Move A: 2 H 1 B \$ H D D F B \$ H F F G G A \$ G X X A \$ X X X X C C \$ X X	147. Move F: 2 H F 1 \$ H F F D D \$ H G G A B \$ G X X A B \$ X X X X C C \$ X X
150. Move H: F 1 \$ F F 2 H D D \$ H G G A B \$ G H X X A B \$ X X X X C C \$ X X	153. Move D: F 1 D D \$ F F 2 H \$ H G G A B \$ G H X X A B \$ X X X X C C \$ X X	156. Move D: F D D \$ F F 2 1 H \$ H G G A B \$ G H X X A B \$ X X X X C C \$ X X	159. Move H: F D D B \$ F F 2 1 B \$ H G G A \$ G X X H A \$ X X H X X C C \$ X X H	162. Move F: D D B \$ H F 1 B \$ F F 2 G G A \$ G X X H A \$ X X H X X C C \$ X X H
165. Move A: D D B A \$ H F 1 B A \$ F F 2 G G \$ G X X H \$ X X H X X C C \$ X X H	168. Move F: D D B A \$ H 1 B A \$ H F 2 G G \$ F F G X X H \$ X X H X X C C \$ X X H			

Fence The Sheep Solution, Easy Version

Here is every 2nd step of a 70 rectilinear moves (87 straight-line moves) solution.

0: A B X X \$ X X A B X X \$ X X F 1 G 3 \$ F F G C C H \$ H D D 2 \$ H	2. Move 2: A B X X \$ X X A B X X \$ X X F 1 G 3 \$ F F G C C 2 H \$ H D D \$ H	4. Move C: A B X X \$ X X A B X X \$ X X F 1 G 3 \$ F F G 2 H \$ H C C D D \$ H	6. Move A: B X X \$ X X B X X \$ X X A 1 G 3 \$ G A F 2 H \$ F F H C C D D \$ H
8. Move 1: B 1 X X \$ X X B X X \$ X X A G 3 \$ G A F 2 H \$ F F H C C D D \$ H	10. Move F: B 1 X X \$ X X B G X X \$ G X X A F 3 \$ F F A 2 H \$ H C C D D \$ H	12. Move H: B 1 X X \$ X X B G X X \$ G X X A 2 F 3 \$ F F A H \$ H C C D D \$ H	14. Move F: B 1 X X \$ X X B G X X \$ G X X A 2 \$ A H F 3 \$ H F F C C D D \$ H
16. Move 1: B 1 \$ B G X X \$ G X X A 2 X X \$ X X A H F 3 \$ H F F C C D D \$ H	18. Move B: B G 1 \$ G B X X \$ X X A 2 X X \$ X X A H F 3 \$ H F F C C D D \$ H	20. Move H: A B G 1 \$ G A B X X \$ X X H 2 X X \$ H X X C F 3 \$ H F F C C D D \$	22. Move D: A B G 1 \$ G A B X X \$ X X H 2 X X \$ H X X C C F 3 \$ H F F D D \$
24. Move F: A B G 1 \$ G A B X X \$ X X H 2 X X \$ H X X C C \$ H D D F 3 \$ F F	26. Move G: A B 1 \$ A B G \$ G H 2 X X \$ H X X C C X X \$ H X X D D F 3 \$ F F	28. Move A: A B 1 \$ A B G \$ G H 2 X X \$ H X X C C X X \$ H X X D D F 3 \$ F F	30. Move 2: H A B 1 \$ H 2 A B G \$ H G X X \$ X X C C X X \$ X X D D F 3 \$ F F
32. Move D: H A B 1 \$ H 2 A B G \$ H G C C X X \$ X X D D X X \$ X X F 3 \$ F F	34. Move 3: H A B 1 \$ H 2 A B G \$ H G C C X X \$ X X D D X X \$ X X F 3 \$ F F	36. Move G: H A B 1 \$ H 2 A B \$ H C C G \$ G D D X X \$ X X F 3 X X \$ F F X X	38. Move B: H A B \$ H 2 A B \$ H C C G 1 \$ G D D X X \$ X X F 3 X X \$ F F X X
40. Move 2: H 2 A B \$ H A B \$ H C C G 1 \$ G D D X X \$ X X F 3 X X \$ F F X X	42. Move G: H 2 A B \$ H C C A B \$ H G 1 \$ G D D X X \$ X X F 3 X X \$ F F X X	44. Move X: H 2 A B \$ H C C A B \$ H G 1 X X \$ G X X D D X X \$ X X F 3 \$ F F	46. Move F: H 2 A B \$ H C C A B \$ H G 1 X X \$ G X X D D X X \$ X X F 3 \$ F F
48. Move 1: H 2 A B \$ H C C A B \$ H G X X \$ G X X 1 X X \$ X X D D F 3 \$ F F	50. Move B: H 2 A \$ H C C A \$ H G X X B \$ G X X 1 X X B \$ X X D D F 3 \$ F F	52. Move 2: H A \$ H C C 2 A \$ H G X X B \$ G X X 1 X X B \$ X X D D F 3 \$ F F	54. Move C: C C H A \$ H 2 A \$ H G X X B \$ G X X 1 X X B \$ X X D D F 3 \$ F F
56. Move 1: C C H A \$ H 1 G 2 A \$ G H X X B \$ X X X X B \$ X X D D F 3 \$ F F	58. Move F: C C H A \$ H 1 G 2 A \$ G H X X F B \$ X X F F X X B \$ X X D D 3 \$	60. Move D: C C H A \$ H 1 G 2 A \$ G H X X F B \$ X X F F X X 3 B \$ X X D D \$	62. Move F: C C H A \$ H 1 G 2 A \$ G H F B \$ F F X X 3 B \$ X X X X D D \$ X X
64. Move H: C C A \$ 1 G A \$ G F 2 H B \$ F F H X X 3 B \$ X X H X X D D \$ X X	66. Move 2: C C G A \$ G 1 2 A \$ F H B \$ F F H X X 3 B \$ X X H X X D D \$ X X	68. Move 3: C C G A \$ G 1 2 H A \$ H F 3 B \$ F F H X X B \$ X X X X D D \$ X X	70. Move G: C C A \$ 1 2 A \$ F 3 G B \$ F F G X X H B \$ X X H X X D D \$ X X H