

### 3.4.4. Example: Designing Heuristics (cont.)

Q

$h_1$ : Tiles out of place

$h_2$ : Manhattan

$h_3$ : 2x reversals

	$h_1$	$h_2$	$h_3$	Goal																		
<table><tr><td>2</td><td>1</td><td>3</td></tr><tr><td>///</td><td>7</td><td>4</td></tr><tr><td>8</td><td>6</td><td>5</td></tr></table>	2	1	3	///	7	4	8	6	5				<table><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>8</td><td>///</td><td>4</td></tr><tr><td>7</td><td>6</td><td>5</td></tr></table>	1	2	3	8	///	4	7	6	5
2	1	3																				
///	7	4																				
8	6	5																				
1	2	3																				
8	///	4																				
7	6	5																				

Solution ①  $h_1 = 4$

<del>2</del>	<del>1</del>	<del>3</del>
<del>///</del>	<del>7</del>	<del>4</del>
<del>8</del>	<del>6</del>	<del>5</del>

②  $h_2 = 5$

1	1	0
2	1	3
///	2	0
1	0	0
8	6	5

Goal

1	2	3
8	///	4
7	6	5

③  $h_3 = 2$

2	1	3
≡	7	4
8	6	5

Goal

1	2	3
8	111	4
7	6	5

④ So

	$h_1$	$h_2$	$h_3$
	4	5	2