Comments:

1. A box constraint hint in a row/column condition can constrain up to 3 cells. Likewise, a row/column hint can constraint up to 3 cells in a box condition. A box constraint cannot be applied in a box condition so necessarily, a box condition must require fewer hints.

Hidden single tutorial – House = row 3, target digit = 5, number of hints = 6, distractors = 0

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  |  |
| **2** |  | **5** |  |  |  |  |  |  |  |
| **3** |  |  |  | **5** | **4** |  | **7** |  | **8** |
| **4** |  |  |  |  |  | **5** |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  | **5** |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  |  |
| **2** |  | **5** |  |  |  |  |  |  |  |
| **3** |  |  |  |  | **4** |  | **7** |  | **8** |
| **4** |  |  |  |  |  | **5** |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  | **5** |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  |  |  |  |  |  |  |  |

Hidden single puzzle 1 – digit condition (same positions)

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|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  |  |
| **2** |  | **4** |  |  |  |  |  |  |  |
| **3** |  |  |  | **4** | **3** |  | **2** |  | **7** |
| **4** |  |  |  |  |  | **4** |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  | **4** |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  |  |
| **2** |  | **4** |  |  |  |  |  |  |  |
| **3** |  |  |  |  | **3** |  | **2** |  | **7** |
| **4** |  |  |  |  |  | **4** |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  | **4** |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  |  |  |  |  |  |  |  |

Hidden single puzzle 2 – constraint condition (same target position)

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  | **8** |
| **2** |  |  |  |  |  |  |  |  |  |
| **3** | **9** | **2** |  | **8** |  | **1** |  |  |  |
| **4** |  |  |  |  | **8** |  |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  | **8** |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  | **8** |
| **2** |  |  |  |  |  |  |  |  |  |
| **3** | **9** | **2** |  |  |  | **1** |  |  |  |
| **4** |  |  |  |  | **8** |  |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  | **8** |  |  |  |  |  |  |

Hidden single puzzle 3 – target position condition (same house)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  | **2** |  |  |  |
| **2** |  |  |  |  |  |  |  |  |  |
| **3** | **9** |  | **4** |  |  |  | **6** | **2** |  |
| **4** |  |  |  |  |  |  |  |  |  |
| **5** |  | **2** |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  |  |  |  |  |  |  | **2** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  | **2** |  |  |  |
| **2** |  |  |  |  |  |  |  |  |  |
| **3** | **9** |  | **4** |  |  |  | **6** |  |  |
| **4** |  |  |  |  |  |  |  |  |  |
| **5** |  | **2** |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  |  |  |  |  |  |  | **2** |

Hidden single puzzle 4 – house index condition (same house type)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |  |  |  |
| **3** |  |  |  |  |  |  |  |  | **7** |
| **4** |  |  | **7** |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  | **9** |  | **2** | **4** | **7** |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  | **7** |  |  |  |  |
| **9** |  |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |  |  |  |
| **3** |  |  |  |  |  |  |  |  | **7** |
| **4** |  |  | **7** |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  | **9** |  | **2** | **4** |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  | **7** |  |  |  |  |
| **9** |  |  |  |  |  |  |  |  |  |

Hidden single puzzle 5a – house type condition (column)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  | **9** |  |  |  |  |  |  |  |
| **2** |  | **4** |  |  |  |  |  |  |  |
| **3** |  |  |  |  |  |  |  |  | **4** |
| **4** |  | **1** |  |  |  |  |  |  |  |
| **5** |  | **5** |  |  |  |  |  |  |  |
| **6** |  |  |  | **4** |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  | **4** |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  | **9** |  |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |  |  |  |
| **3** |  |  |  |  |  |  |  |  | **4** |
| **4** |  | **1** |  |  |  |  |  |  |  |
| **5** |  | **5** |  |  |  |  |  |  |  |
| **6** |  |  |  | **4** |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  | **4** |  |  |  |  |  |  |

Hidden single puzzle 5b – house type condition (box, 6 hints => 2 distractors).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |  | **9** |  |
| **3** |  |  |  |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  | **1** |  | **9** |
| **8** |  |  | **9** |  |  |  | **4** |  |  |
| **9** |  |  |  | **9** |  |  |  |  | **6** |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |  | **9** |  |
| **3** |  |  |  |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  | **1** |  |  |
| **8** |  |  | **9** |  |  |  | **4** |  |  |
| **9** |  |  |  | **9** |  |  |  |  | **6** |

Hidden single puzzle 5c – house type condition (box, 5 hints => 1 distractor).

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |  | **9** |  |
| **3** |  |  |  |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  | **1** |  | **9** |
| **8** |  |  | **9** |  |  |  |  |  |  |
| **9** |  |  |  | **9** |  |  |  |  | **6** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |  | **9** |  |
| **3** |  |  |  |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  | **1** |  |  |
| **8** |  |  | **9** |  |  |  |  |  |  |
| **9** |  |  |  | **9** |  |  |  |  | **6** |

Hidden single puzzle 5d – house type condition (box, 4 hints => 0 distractors).

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|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |  | **9** |  |
| **3** |  |  |  |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  | **1** |  | **9** |
| **8** |  |  | **9** |  |  |  |  |  |  |
| **9** |  |  |  | **9** |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |  | **9** |  |
| **3** |  |  |  |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  | **1** |  |  |
| **8** |  |  | **9** |  |  |  |  |  |  |
| **9** |  |  |  | **9** |  |  |  |  |  |

Hidden single tutorial – House = row 3, target digit = 5, number of hints = 4, distractors = 0

This doesn’t look that different from a box condition though

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|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  | **5** |  |  |
| **2** |  | **5** |  |  |  |  |  |  |  |
| **3** |  |  |  | **5** | **4** |  |  |  |  |
| **4** |  |  |  |  |  | **5** |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  | **5** |  |  |
| **2** |  | **5** |  |  |  |  |  |  |  |
| **3** |  |  |  |  | **4** |  |  |  |  |
| **4** |  |  |  |  |  | **5** |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
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| **9** |  |  |  |  |  |  |  |  |  |

Hidden single tutorial – House = row 3, target digit = 5, number of hints = 5, distractors = 1

To have 5 hints, at least one of the hints must be a distractor. Moreover, it still doesn’t look that different from a box condition

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|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  | **5** |  |  |
| **2** |  | **5** |  |  |  |  |  |  |  |
| **3** |  |  | **1** | **5** | **4** |  |  |  |  |
| **4** |  |  |  |  |  | **5** |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  |  |  |  |  |  |
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|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  | **5** |  |  |
| **2** |  | **5** |  |  |  |  |  |  |  |
| **3** |  |  | **1** |  | **4** |  |  |  |  |
| **4** |  |  |  |  |  | **5** |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  |  |  |  |  |  |  |  |

Conclusion: 6 hints with 0 distractors is probably the best since having any fewer hints loses the distinction between row/column conditions and box conditions.

Hidden single tutorial – House = box green, target digit = 5, number of hints = 6, distractors = 1

Blue = redundant, yellow = neutral, red = harmful

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|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  | **5** |  |  |
| **2** |  |  |  |  |  |  |  |  |  |
| **3** |  |  |  |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |  | **3** | **4** |
| **5** |  |  |  |  |  |  |  | **5** | **1** |
| **6** |  | **5** |  |  |  |  | **9** |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  |  |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** |
| **1** |  |  |  |  |  |  | **5** |  |  |
| **2** |  |  | **5** |  |  |  |  |  |  |
| **3** |  |  |  |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |  | **3** | **4** |
| **5** |  |  |  |  |  |  |  |  | **1** |
| **6** | **7** | **5** |  |  |  |  | **9** |  |  |
| **7** |  |  |  |  |  |  |  |  |  |
| **8** |  |  |  |  |  |  |  |  |  |
| **9** |  |  |  |  |  |  |  |  |  |