Latticeforge — Activity Book

A Spark & Anvil activity book — puzzles, questions, and fun from Latticeforge.

Write in the book, circle your answers, and check the Answer Key at the back.

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1. Latin-square uniqueness — each symbol appears exactly once in every row, column, and box (Sudoku)

Circle the correct answer

1. In Sudoku, how many times may the same number appear in one row?
(A) exactly once (B) as many times as you like (C) never (D) twice

2. How many times may the same number appear in one column?
(A) it depends on the column (B) exactly once (C) three times (D) twice

3. In a 4x4 Sudoku, what is a 'box' (region)?
(A) a whole row (B) a single cell (C) a 2x2 block of cells (D) the entire grid

4. In a 9x9 Sudoku, each box is a block of what size?
(A) 1x9 (B) 3x3 (C) 9x9 (D) 2x2

5. Which of these is NOT allowed in Sudoku?
(A) a different number in each cell of a row (B) the same number in a different row (C) an empty cell you haven't solved yet (D) the same number twice in one row

6. In a 4x4 Sudoku, which numbers does each row contain?
(A) 1 through 9, each once (B) any numbers that add to 10 (C) 1, 2, 3, and 4, each once (D) only even numbers

Write the answer

7. A row of a 4x4 Sudoku already shows 1, 2, 3 and one empty cell. What number goes in the empty cell?
Answer: _____

8. A column of a 4x4 Sudoku shows 1, (empty), 3, 4 from top to bottom. What goes in the empty cell?
Answer: _____

9. A cell where only one number can possibly fit is called a 'forced' cell. What should you do with it?
Answer: _____

10. What does it mean when a cell's number is 'forced'?
Answer: _____

Match each question to its answer

1. A 2x2 box in a 4x4 Sudoku shows 1, 2, 4 and one empty cell. What number completes the box? →
2. A 4x4 row has two empty cells, and the numbers still missing from that row are 2 and 4. What can you say? →
3. Onlie's rule sums up Sudoku. Which statement is it? →
4. How many cells are in each row of a 9x9 Sudoku? →
5. How many boxes are there in a standard 9x9 Sudoku? →

(A) 9
(B) 9
(C) each symbol appears exactly once in every row, column, and box
(D) 3
(E) one empty cell is 2 and the other is 4

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2. deduction

Circle the correct answer

11. A row in a 4x4 puzzle already holds 1, 2, 4. Which number MUST go in the empty cell?
(A) 4 (B) 3 (C) 1 (D) 2

12. A column in a 4x4 puzzle already holds 2, 3, 4. Which number MUST go in the empty cell?
(A) 2 (B) 4 (C) 3 (D) 1

13. A row in a 5x5 puzzle already holds 1, 2, 3, 5. Which number MUST go in the empty cell?
(A) 4 (B) 3 (C) 2 (D) 1

14. A box in a 5x5 puzzle already holds 1, 3, 4, 5. Which number MUST go in the empty cell?
(A) 1 (B) 2 (C) 3 (D) 4

15. A row in a 6x6 puzzle already holds 1, 2, 3, 4, 6. Which number MUST go in the empty cell?
(A) 1 (B) 5 (C) 3 (D) 2

16. A column in a 6x6 puzzle already holds 1, 2, 4, 5, 6. Which number MUST go in the empty cell?
(A) 4 (B) 2 (C) 3 (D) 1

Write the answer

17. A row in a 4x4 puzzle already holds 1, 3, 4. Which number MUST go in the empty cell?
Answer: _____

18. A column in a 5x5 puzzle already holds 2, 3, 4, 5. Which number MUST go in the empty cell?
Answer: _____

19. A row in a 9x9 puzzle already holds 1, 2, 3, 4, 5, 6, 8, 9. Which number MUST go in the empty cell?
Answer: _____

20. A box in a 9x9 puzzle already holds 1, 2, 3, 5, 6, 7, 8, 9. Which number MUST go in the empty cell?
Answer: _____

Match each question to its answer

1. A column in a 4x4 puzzle already holds 1, 2, 3. Which number MUST go in the empty cell? →
2. A row in a 5x5 puzzle already holds 1, 2, 3, 4. Which number MUST go in the empty cell? →
3. A row in a 6x6 puzzle already holds 2, 3, 4, 5, 6. Which number MUST go in the empty cell? →
4. A column in a 6x6 puzzle already holds 1, 2, 3, 4, 5. Which number MUST go in the empty cell? →
5. A box in a 5x5 puzzle already holds 1, 2, 4, 5. Which number MUST go in the empty cell? →

(A) 1
(B) 5
(C) 4
(D) 6
(E) 3

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3. arithmetic cages

Circle the correct answer

21. A two-cell '+' cage in a 1-4 puzzle has target 3+ (no repeats in a cage line). Which pair fills it?
(A) 1 and 4 (B) 1 and 2 (C) 1 and 1 (D) 2 and 2

22. A two-cell '+' cage in a 1-4 puzzle has target 7+ (no repeats in a cage line). Which pair fills it?
(A) 4 and 4 (B) 3 and 4 (C) 3 and 3 (D) 1 and 4

23. A two-cell '+' cage in a 1-5 puzzle has target 3+ (no repeats in a cage line). Which pair fills it?
(A) 1 and 2 (B) 2 and 2 (C) 1 and 5 (D) 1 and 1

24. A two-cell '+' cage in a 1-5 puzzle has target 9+ (no repeats in a cage line). Which pair fills it?
(A) 4 and 5 (B) 5 and 5 (C) 1 and 5 (D) 4 and 4

25. A two-cell '+' cage in a 1-6 puzzle has target 11+ (no repeats in a cage line). Which pair fills it?
(A) 1 and 6 (B) 5 and 6 (C) 5 and 5 (D) 6 and 6

26. A two-cell '+' cage in a 1-6 puzzle has target 3+ (no repeats in a cage line). Which pair fills it?
(A) 2 and 2 (B) 1 and 6 (C) 1 and 1 (D) 1 and 2

Write the answer

27. A two-cell '+' cage in a 1-7 puzzle has target 13+ (no repeats in a cage line). Which pair fills it?
Answer: _____

28. A two-cell '+' cage in a 1-8 puzzle has target 15+ (no repeats in a cage line). Which pair fills it?
Answer: _____

29. A two-cell 'x' cage in a 1-4 puzzle has target 6x. Which pair fills it (no repeats)?
Answer: _____

30. A two-cell 'x' cage in a 1-4 puzzle has target 12x. Which pair fills it (no repeats)?
Answer: _____

Match each question to its answer

1. A two-cell 'x' cage in a 1-5 puzzle has target 8x. Which pair fills it (no repeats)? →
2. A two-cell 'x' cage in a 1-5 puzzle has target 15x. Which pair fills it (no repeats)? →
3. A two-cell 'x' cage in a 1-6 puzzle has target 10x. Which pair fills it (no repeats)? →
4. A two-cell 'x' cage in a 1-6 puzzle has target 24x. Which pair fills it (no repeats)? →
5. A two-cell 'x' cage in a 1-5 puzzle has target 20x. Which pair fills it (no repeats)? →

(A) 3 and 5
(B) 2 and 4
(C) 4 and 5
(D) 2 and 5
(E) 4 and 6

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4. cross-sums

Circle the correct answer

31. A Kakuro run of 2 cells sums to 3 with all different digits 1-9. Which digits fill it?
(A) 1-1 (B) 1-2 (C) 1-3 (D) 2-3

32. A Kakuro run of 2 cells sums to 4 with all different digits 1-9. Which digits fill it?
(A) 2-4 (B) 1-3 (C) 1-4 (D) 1-1

33. A Kakuro run of 2 cells sums to 16 with all different digits 1-9. Which digits fill it?
(A) 8-8 (B) 7-7 (C) 7-8 (D) 7-9

34. A Kakuro run of 2 cells sums to 17 with all different digits 1-9. Which digits fill it?
(A) 9-8 (B) 8-9 (C) 9-9 (D) 8-8

35. A Kakuro run of 3 cells sums to 6 with all different digits 1-9. Which digits fill it?
(A) 1-2-3 (B) 1-1-1 (C) 2-3-4 (D) 1-2-4

36. A Kakuro run of 3 cells sums to 7 with all different digits 1-9. Which digits fill it?
(A) 2-3-5 (B) 1-2-5 (C) 1-2-4 (D) 1-1-1

Write the answer

37. A Kakuro run of 3 cells sums to 23 with all different digits 1-9. Which digits fill it?
Answer: _____

38. A Kakuro run of 3 cells sums to 24 with all different digits 1-9. Which digits fill it?
Answer: _____

39. A Kakuro run of 4 cells sums to 10 with all different digits 1-9. Which digits fill it?
Answer: _____

40. A Kakuro run of 4 cells sums to 11 with all different digits 1-9. Which digits fill it?
Answer: _____

Match each question to its answer

1. A Kakuro run of 4 cells sums to 29 with all different digits 1-9. Which digits fill it? →
2. A Kakuro run of 4 cells sums to 30 with all different digits 1-9. Which digits fill it? →
3. How many distinct-digit pairs (1-9) can fill a 2-cell Kakuro run summing to 5? →
4. How many distinct-digit pairs (1-9) can fill a 2-cell Kakuro run summing to 6? →
5. How many distinct-digit pairs (1-9) can fill a 2-cell Kakuro run summing to 10? →

(A) 2
(B) 2
(C) 6-7-8-9
(D) 4
(E) 5-7-8-9

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5. line clues

Circle the correct answer

41. A nonogram line of length 5 has the clue [5]. How many cells are filled in total?
(A) 2 (B) 1 (C) 5 (D) 3

42. A nonogram line of length 5 has the clue [3]. How many cells are filled in total?
(A) 4 (B) 2 (C) 3 (D) 1

43. A nonogram line of length 5 has the clue [2, 1]. How many cells are filled in total?
(A) 4 (B) 2 (C) 1 (D) 3

44. A nonogram line of length 5 has the clue [1, 1, 1]. How many cells are filled in total?
(A) 2 (B) 3 (C) 4 (D) 1

45. A nonogram line of length 6 has the clue [4]. How many cells are filled in total?
(A) 3 (B) 2 (C) 4 (D) 1

46. A nonogram line of length 6 has the clue [2, 2]. How many cells are filled in total?
(A) 1 (B) 4 (C) 3 (D) 2

Write the answer

47. A nonogram line of length 6 has the clue [3, 1]. How many cells are filled in total?
Answer: _____

48. A nonogram line of length 5 has the clue [1, 2]. How many cells are filled in total?
Answer: _____

49. A nonogram line of length 4 has the clue [2]. How many cells are filled in total?
Answer: _____

50. A nonogram line of length 4 has the clue [1, 1]. How many cells are filled in total?
Answer: _____

Match each question to its answer

1. A nonogram line of length 7 has the clue [3, 2]. How many cells are filled in total? →
2. A nonogram line of length 7 has the clue [4, 1]. How many cells are filled in total? →
3. A nonogram line of length 6 has the clue [1, 1, 2]. How many cells are filled in total? →
4. A nonogram line of length 6 has the clue [6]. How many cells are filled in total? →
5. A nonogram line of length 8 has the clue [2, 3]. How many cells are filled in total? →

(A) 6
(B) 5
(C) 5
(D) 5
(E) 4

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6. inequalities

Circle the correct answer

51. A < B, and B = 2 (numbers 1-4). What is A?
(A) 2 (B) 1 (C) 4 (D) 3

52. A < B, and A = 4 (numbers 1-5). What is B?
(A) 5 (B) 2 (C) 3 (D) 1

53. A > B, and B = 4 (numbers 1-5). What is A?
(A) 3 (B) 5 (C) 1 (D) 2

54. A > B, and A = 2 (numbers 1-4). What is B?
(A) 1 (B) 2 (C) 3 (D) 4

55. A < B < C (numbers 1-3, all different). What is A?
(A) 2 (B) 3 (C) 1 (D) 4

56. A < B < C (numbers 1-3, all different). What is C?
(A) 1 (B) 4 (C) 2 (D) 3

Write the answer

57. A < B < C (numbers 1-3, all different). What is B?
Answer: _____

58. A < B, both from 1-4, and A = 3. What is B?
Answer: _____

59. A > B, both from 1-3, and B = 2. What is A?
Answer: _____

60. A < B, both 1-5, and B = 1. This is⋯
Answer: _____

Match each question to its answer

1. A < B with both from 1-4. If A = 3, what is the SMALLEST B can be? →
2. A < B with both from 1-5. If A = 4, what is the SMALLEST B can be? →
3. A < B with both from 1-6. If A = 5, what is the SMALLEST B can be? →
4. A < B with both from 1-4. If A = 1, what is the SMALLEST B can be? →
5. A < B with both from 1-5. If A = 1, what is the SMALLEST B can be? →

(A) 4
(B) 2
(C) 2
(D) 6
(E) 5

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7. elimination

Circle the correct answer

61. In Hitori you make duplicates disappear by…
(A) erasing the grid (B) drawing loops (C) adding numbers (D) shading (blacking out) cells

62. Two shaded cells may never be…
(A) on an edge (B) in the same puzzle (C) the same number (D) next to each other (adjacent)

63. The UNshaded cells must all be…
(A) shaded later (B) equal (C) separated (D) connected in one group

64. A row reads 2 2 3. To satisfy Hitori you should shade…
(A) one of the 2s (B) both 2s (C) nothing (D) the 3

65. If shading a cell would split the white cells into two pieces, you…
(A) erase it (B) shade it anyway (C) shade its neighbour (D) must NOT shade it

66. If two equal numbers are adjacent and one must be shaded, but shading either breaks a rule, then…
(A) the puzzle is unsolvable (B) the cell between constraints is forced the other way (C) shade neither and stop (D) shade both

Write the answer

67. A number that appears only ONCE in its row and column…
Answer: _____

68. Cells orthogonally adjacent means sharing…
Answer: _____

69. Hitori mainly trains which kind of thinking?
Answer: _____

70. If a cell is unshaded, its equal-valued neighbours in the same line must be…
Answer: _____

Match each question to its answer

1. Can a shaded cell and an unshaded cell be adjacent? →
2. A good first Hitori move is to find… →
3. In the triple 'a a a' along a line, which cell stays unshaded? →
4. Hitori's three rules are: remove duplicates, no adjacent shaded, and… →
5. If leaving a cell white would repeat a number already kept in its column, you must… →

(A) keep white cells connected
(B) the middle one
(C) yes
(D) a run of three equal numbers in a line
(E) shade that cell

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8. visibility ordering

Circle the correct answer

71. A Skyscrapers edge clue counts…
(A) the tallest building (B) the total floors (C) the empty cells (D) how many buildings you can see from that edge

72. On a row of heights 1-4, a clue of 1 means the nearest building is…
(A) 1 (B) 4 (the tallest) (C) 3 (D) 2

73. On a row of heights 1-4, a clue of 4 means the order is…
(A) any order (B) 1, 2, 3, 4 (ascending) (C) all the same (D) 4, 3, 2, 1

74. A clue equal to n (the grid size) forces the nearest building to be…
(A) 2 (B) n (C) 1 (the shortest) (D) n-1

75. A taller building in front of a shorter one makes the shorter one…
(A) taller (B) disappear from the grid (C) hidden (not visible) (D) visible

76. Skyscrapers also obeys which core rule?
(A) loop parity (B) each height 1-n appears once per row and column (C) cage sums (D) line clues

Write the answer

77. The largest possible clue on an n-wide row is…
Answer: _____

78. The smallest possible clue is…
Answer: _____

79. If two opposite clues on a line are 1 and 2, the tallest building is…
Answer: _____

80. Skyscrapers trains reasoning about…
Answer: _____

Match each question to its answer

1. On a 1-5 row with a clue of 1, the nearest height is⋯ →
2. On a 1-5 row with a clue of 5, the nearest height is⋯ →
3. A clue of 2 on a 1-4 row means exactly⋯ →
4. Which building is ALWAYS visible? →
5. Placing the tallest building in the middle of a line tends to⋯ →

(A) reduce how many are visible from both ends
(B) 5
(C) the nearest one to the clue
(D) 1
(E) two buildings are visible from that side

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9. loop building

Circle the correct answer

81. The goal of Slitherlink is to draw⋯
(A) shaded cells (B) many small loops (C) a straight line (D) one single closed loop

82. A cell clue tells you how many of its 4 edges are⋯
(A) empty forever (B) shaded (C) diagonal (D) part of the loop

83. A cell marked 0 has⋯
(A) one edge (B) two edges (C) all four edges (D) no loop edges around it

84. A cell marked 3 has⋯
(A) three loops (B) three cells filled (C) three corners (D) three of its four edges on the loop

85. At every dot (corner), the number of loop lines meeting must be⋯
(A) any number (B) always 1 (C) 0 or 2 (D) always 3

86. Why can't a corner have exactly 1 line?
(A) clues forbid it (B) a loop can't dead-end (C) corners are decorative (D) 1 is even

Write the answer

87. Two 3-clues sitting side by side force⋯
Answer: _____

88. Slitherlink reasoning relies heavily on···
Answer: _____

89. A clue of 1 on a corner cell of the grid often forces···
Answer: _____

90. The finished loop must be···
Answer: _____

Match each question to its answer

1. How many separate loops does a solved Slitherlink have? →
2. A cell marked 2 has how many edges NOT on the loop? →
3. If three edges around a 3-cell are decided as OFF, the puzzle is··· →
4. Loop segments run along cell··· →
5. Marking edges you KNOW are empty (with an x) helps because··· →

(A) exactly one
(B) edges (between the dots)
(C) it narrows the remaining choices
(D) 2
(E) in contradiction (a 3 needs 3 on)

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10. placement & spacing

Circle the correct answer

91. In a 2-star Star Battle, each row contains exactly···
(A) 3 stars (B) 1 star (C) 2 stars (D) any number

92. Two stars may never be···
(A) touching, even diagonally (B) on an edge (C) in the same puzzle (D) the same colour

93. Besides rows and columns, stars are also counted per···
(A) clue (B) region (outlined shape) (C) colour (D) diagonal

94. If a row already has its 2 stars, the other cells in that row are···
(A) all empty (B) shaded (C) unknown (D) also stars

95. If a star is placed, the 8 cells around it must be···
(A) shaded (B) stars (C) empty (D) counted twice

96. A region that fits inside a single row must hold its stars…
(A) in that row (B) in a column only (C) in another region (D) nowhere

Write the answer

97. Star Battle mainly trains…
Answer: _____

98. In a 1-star Star Battle, each column has…
Answer: _____

99. If only two non-adjacent cells remain in a region, both…
Answer: _____

100. Can two stars share a diagonal corner?
Answer: _____

Match each question to its answer

1. In a 2-star 10x10 puzzle, how many stars total? →
2. A column with 2 stars already placed blocks new stars… →
3. The first cells to mark empty are usually… →
4. If a region can only place its stars in one row, that row's OTHER cells (outside the region)… →
5. Star Battle counts stars per row, per column, and per… →

(A) in the rest of that column
(B) region
(C) neighbours of a placed star
(D) 20
(E) cannot hold more stars than the count allows

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11. propagation

Circle the correct answer

101. 'Constraint propagation' means…
(A) one placement forces the next, and so on (B) erasing the grid (C) adding numbers (D) guessing until it works

102. When you place a number, you should immediately…
(A) shade it (B) stop (C) guess the next (D) remove it as a candidate in the shared units

103. A chain of forced cells lets you solve WITHOUT…
(A) guessing (B) the clues (C) logic (D) the rules

104. If cell X being 5 would force cell Y to break a rule, then X…
(A) equals Y (B) is ignored (C) cannot be 5 (D) must be 5

105. Across families, the shared idea is that constraints…
(A) only matter at the end (B) are optional (C) add randomness (D) reduce the candidates for other cells

106. The best cell to fill next is usually the one with…
(A) the biggest number (B) no clue (C) the fewest candidates (D) the most candidates

Write the answer

107. When a cage's digit set is fixed, nearby cells…
Answer: _____

108. Propagation stops (and you must look harder) when…
Answer: _____

109. A 'locked candidate' is a number confined to…
Answer: _____

110. Constraint propagation is used by computer solvers because it…
Answer: _____

Match each question to its answer

1. If two cells share every candidate {3,7}, other cells in their unit… →
2. The order you solve forced cells in… →
3. A contradiction found during propagation means… →
4. Propagation across DIFFERENT families (say a cage feeding a Latin line) shows constraints are… →
5. The payoff of good propagation is… →

(A) combinable
(B) an earlier placement was wrong
(C) solving with certainty and no backtracking
(D) does not change the final solution
(E) cannot be 3 or 7

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12. parity

Circle the correct answer

111. Parity means whether a number is⋯
(A) even or odd (B) big or small (C) prime or not (D) positive or negative

112. A closed loop crosses any straight line an⋯
(A) odd number of times (B) single time (C) even number of times (D) infinite number

113. At each corner of a Slitherlink loop, the number of lines is⋯
(A) always 4 (B) 1 or 3 (odd) (C) always 1 (D) 0 or 2 (even)

114. If a region needs an even number of a thing but only an odd number fit, the puzzle is⋯
(A) solved (B) unchanged (C) easy (D) impossible there

115. In Hitori, connectivity is a form of which structural idea?
(A) numbers are prime (B) the white cells form one connected graph (C) the grid is a loop (D) cells are even

116. To check connectivity you can imagine⋯
(A) adding the numbers (B) walking between white cells through shared edges (C) shading everything (D) drawing a loop

Write the answer

117. A single closed loop divides the plane into⋯
Answer: _____

118. Point-in-loop parity: crossing the loop an ODD number of times from outside means you end up⋯
Answer: _____

119. Parity arguments help most when a puzzle asks about⋯
Answer: _____

120. If shading must alternate and a loop of cells has odd length, then⋯
Answer: _____

Match each question to its answer

1. Even + even = →
2. Odd + odd = →
3. Odd + even = →
4. Why is parity called a 'loop argument' in these puzzles? →

5. A quick contradiction check is to ask whether a required total's parity… →

(A) matches what the cells can provide
(B) even
(C) even
(D) loops force even counts at crossings/vertices
(E) odd

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13. partitions

Circle the correct answer

121. How many ways can 5 be written as TWO different digits (1-9)?
(A) 1 (B) 3 (C) 4 (D) 2

122. How many ways can 6 be written as TWO different digits (1-9)?
(A) 1 (B) 4 (C) 2 (D) 3

123. How many ways can 7 be written as TWO different digits (1-9)?
(A) 4 (B) 1 (C) 2 (D) 3

124. How many ways can 10 be written as TWO different digits (1-9)?
(A) 1 (B) 4 (C) 3 (D) 2

125. How many ways can 13 be written as TWO different digits (1-9)?
(A) 3 (B) 4 (C) 2 (D) 1

126. How many ways can 4 be written as TWO different digits (1-9)?
(A) 3 (B) 2 (C) 4 (D) 1

Write the answer

127. How many ways can 8 be written as TWO different digits (1-9)?
Answer: _____

128. How many ways can 11 be written as TWO different digits (1-9)?
Answer: _____

129. How many ways can 9 be written as TWO different digits (1-9)?
Answer: _____

130. How many ways can 12 be written as TWO different digits (1-9)?
Answer: _____

Match each question to its answer

1. How many ways can 14 be written as TWO different digits (1-9)? →
2. How many ways can 16 be written as TWO different digits (1-9)? →
3. How many ways can 15 be written as TWO different digits (1-9)? →
4. How many ways can 17 be written as TWO different digits (1-9)? →
5. How many ways can 3 be written as TWO different digits (1-9)? →

(A) 2
(B) 2
(C) 1
(D) 1
(E) 1

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14. proof

Circle the correct answer

131. 'No guessing' solving means every move is⋯
(A) random (B) logically forced (C) a lucky guess (D) copied

132. A proof by contradiction assumes a value, then⋯
(A) accepts it (B) guesses again (C) shows it breaks a rule, ruling it out (D) ends the puzzle

133. A 'forcing chain' follows implications until⋯
(A) a guess works (B) you get bored (C) the grid is full (D) they all agree on one cell's value

134. If both candidates of a cell force cell Z to be 4, then Z⋯
(A) is unknown (B) must be guessed (C) is 4 (D) is empty

135. Advanced deduction avoids backtracking by⋯
(A) adding clues (B) trying every option blindly (C) shading (D) eliminating candidates with proofs

136. The strongest evidence a move is safe is that⋯
(A) it feels right (B) no rule can ever be broken by it (C) it's a big number (D) it's in the corner

Write the answer

137. An 'X-wing' style pattern eliminates candidates using…
Answer: _____

138. When stuck with only singles, the next tool is usually…
Answer: _____

139. A well-formed puzzle guarantees advanced deduction will…
Answer: _____

140. The value of proving instead of guessing is…
Answer: _____

Match each question to its answer

1. If assuming cell A = 6 forces two cells to both need 2 in one row, then A… →
2. A contradiction is useful because it… →
3. Chains are drawn between cells that… →
4. The safest first advanced technique after singles is… →
5. Advanced deduction proves the puzzle has… →

(A) imply each other's values
(B) one reachable solution by logic
(C) the naked/hidden pair
(D) is not 6
(E) eliminates a candidate for certain

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15. uniqueness

Circle the correct answer

141. A well-formed logic puzzle has…
(A) many solutions (B) two solutions (C) no solution (D) exactly one solution

142. Uniqueness lets solvers use…
(A) guessing (B) the 'avoid two solutions' deduction (C) extra clues (D) shading

143. A 'deadly pattern' (like a 2x2 of the same two candidates) is avoided because it would give…
(A) a loop (B) two valid solutions (C) one solution (D) no solution

144. If a puzzle has TWO solutions, it is…
(A) unsolvable (B) extra good (C) not well-formed (D) still fine

145. A generator checks uniqueness by…
(A) shading (B) confirming only one solution exists before publishing (C) guessing once (D) counting clues

146. The minimum clues rule of thumb is 'enough so that…
(A) the grid looks full (B) the solution is forced and unique' (C) you can guess (D) it's pretty

Write the answer

147. Why do good solvers TRUST uniqueness?
Answer: _____

148. Adding more clues than needed makes a puzzle…
Answer: _____

149. Uniqueness is a property of the…
Answer: _____

150. If two different fillings both satisfy every clue, the puzzle…
Answer: _____

Match each question to its answer

1. The 'unique rectangle' warns against four cells forming… →
2. Uniqueness reasoning is only valid when… →
3. A puzzle with NO solution is… →
4. The clearest sign your deductions are correct is… →
5. Puzzle setters aim for a solution that is unique AND… →

(A) reachable by logic (no guessing)
(B) a swappable two-candidate rectangle
(C) also not well-formed
(D) they lead to one consistent full grid
(E) the puzzle is known to be well-formed

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16. synthesis

Circle the correct answer

151. A row in a 4x4 puzzle already holds 1, 2, 4. Which number MUST go in the empty cell?
(A) 4 (B) 2 (C) 1 (D) 3

152. A two-cell '+' cage in a 1-4 puzzle has target 3+ (no repeats in a cage line). Which pair fills it?
(A) 1 and 2 (B) 1 and 1 (C) 1 and 4 (D) 2 and 2

153. A Kakuro run of 2 cells sums to 3 with all different digits 1-9. Which digits fill it?
(A) 1-1 (B) 1-3 (C) 2-3 (D) 1-2

154. A nonogram line of length 5 has the clue [5]. How many cells are filled in total?
(A) 1 (B) 2 (C) 5 (D) 3

155. A < B, and B = 2 (numbers 1-4). What is A?
(A) 2 (B) 4 (C) 1 (D) 3

156. In Hitori you make duplicates disappear by…
(A) adding numbers (B) drawing loops (C) erasing the grid (D) shading (blacking out) cells

Write the answer

157. On a row of heights 1-4, a clue of 1 means the nearest building is…
Answer: _____

158. A cell marked 3 has…
Answer: _____

159. In a 2-star Star Battle, each row contains exactly…
Answer: _____

160. 'Constraint propagation' means…
Answer: _____

Match each question to its answer

1. A closed loop crosses any straight line an… →
2. How many ways can 9 be written as TWO different digits (1-9)? →
3. A 'forcing chain' follows implications until… →
4. A well-formed logic puzzle has… →
5. Across ALL these puzzles, the shared big idea is that… →

(A) exactly one solution
(B) 4
(C) even number of times
(D) they all agree on one cell's value
(E) constraints narrow possibilities until the answer is forced

Riddle & Joke Break

Guess the answer, then check the key!

161. A 3x3 grid uses the numbers 1, 2, 3 with each appearing once per row and column. The top row is 1, 2, 3 and the middle row starts with 2. What are the middle row's three numbers, in order?

162. The pattern is 2, 4, 8, 16... what's the rule and the next number?

163. Three friends -- Ana, Ben, Cy -- each like one color: red, blue, or green. Ana doesn't like red or blue. What color does Ana like?

164. The pattern is 1, 4, 9, 16, 25... what's the rule and the next term?

165. In a grid, if a cell can't be 1, 2, or 4, and the only options are 1-5, what must it be?

166. The pattern is 3, 6, 12, 24... what's the next number?

167. A 2x2 grid needs each row and column to sum to 10. The top row is 3 and 7. If the bottom-left is 7, what's the bottom-right?

168. The pattern is 1, 1, 2, 3, 5, 8... what's the rule and the next number?

169. Why did the grid puzzle stay so organized?

170. Why did the logic puzzle refuse to guess?

171. Why was the rule so shy?

172. Why did the constraint make everyone behave?

173. Why did the Latin square never repeat itself?

174. Why did the clue feel important?

Fun Facts

- Did you know? Sudoku is a Latin square with an extra rule (the 3x3 boxes). The name "Sudoku" is Japanese for "single number," but the puzzle was actually invented in the United States in 1979 before becoming famous in Japan!
- Did you know? A "Latin square" gets its name from mathematician Leonhard Euler, who filled grids with Latin letters so each symbol appears once per row and column -- the foundation of countless puzzles!
- Did you know? "Process of elimination" is a real logic principle: if you can rule out every option except one, the remaining option MUST be true, even if you never

proved it directly!

- Did you know? A 3x3 magic square, where every row, column, and diagonal sums to 15, appears in an ancient Chinese legend as markings on the shell of a turtle from the Lo river over 4,000 years ago!
- Did you know? The best puzzle-solvers write down what's IMPOSSIBLE, not just what's possible. Tracking eliminated options turns a scary grid into a shrinking list of choices!
- Did you know? Many patterns can fit the start of a sequence. 1, 2, 4 could be "doubling" (next 8) OR "add one more each time" (next 7). Good deducers look for the SIMPLEST rule that fits!
- Did you know? Logic-grid puzzles (the kind with clues like "the doctor sat next to the person in blue") are solved with a grid where you mark X for impossible and O for certain -- exactly like LatticeForge!
- Did you know? "Parity" -- whether a count is even or odd -- can prove some grids are impossible before you even start. If a rule needs an even number of something and you have an odd number, no solution exists!

Answer Key

1. A — exactly once
2. B — exactly once
3. C — a 2x2 block of cells
4. B — 3x3
5. D — the same number twice in one row
6. C — 1, 2, 3, and 4, each once
7. 4
8. 2
9. place that one number for certain
10. only one number is possible there
    Matching (Latin-square uniqueness — each symbol appears exactly once in every row, column, and box (Sudoku)): 1→D, 2→E, 3→C, 4→A, 5→A
11. B — 3
12. D — 1

13. A — 4
14. B — 2
15. B — 5
16. C — 3
17. 2
18. 1
19. 7
20. 4
    Matching (deduction): 1→C, 2→B, 3→A, 4→D, 5→E
21. B — 1 and 2
22. B — 3 and 4
23. A — 1 and 2
24. A — 4 and 5
25. B — 5 and 6
26. D — 1 and 2
27. 6 and 7
28. 7 and 8
29. 2 and 3
30. 3 and 4
    Matching (arithmetic cages): 1→B, 2→A, 3→D, 4→E, 5→C
31. B — 1-2
32. B — 1-3
33. D — 7-9
34. B — 8-9
35. A — 1-2-3
36. C — 1-2-4
37. 6-8-9
38. 7-8-9

39. 1-2-3-4
40. 1-2-3-5
    Matching (cross-sums): 1→E, 2→C, 3→A, 4→A, 5→D
41. C — 5
42. C — 3
43. D — 3
44. B — 3
45. C — 4
46. B — 4
47. 4
48. 3
49. 2
50. 2
    Matching (line clues): 1→B, 2→B, 3→E, 4→A, 5→B
51. B — 1
52. A — 5
53. B — 5
54. A — 1
55. C — 1
56. D — 3
57. 2
58. 4
59. 3
60. impossible
    Matching (inequalities): 1→A, 2→E, 3→D, 4→B, 5→B
61. D — shading (blacking out) cells
62. D — next to each other (adjacent)
63. D — connected in one group

64. A — one of the 2s
65. D — must NOT shade it
66. B — the cell between constraints is forced the other way
67. is safe to leave unshaded
68. an edge (up/down/left/right)
69. elimination and connectivity
70. shaded
    Matching (elimination): 1→C, 2→D, 3→B, 4→A, 5→E
71. D — how many buildings you can see from that edge
72. B — 4 (the tallest)
73. B — 1, 2, 3, 4 (ascending)
74. C — 1 (the shortest)
75. C — hidden (not visible)
76. B — each height 1-n appears once per row and column
77. n
78. 1
79. at the '1' end
80. ordering and visibility
    Matching (visibility ordering): 1→B, 2→D, 3→E, 4→C, 5→A
81. D — one single closed loop
82. D — part of the loop
83. D — no loop edges around it
84. D — three of its four edges on the loop
85. C — 0 or 2
86. B — a loop can't dead-end
87. an edge between them plus surrounding segments
88. parity (even/odd counting)
89. the two outer edges to stay empty

90. closed and unbroken with no crossings or branches
    Matching (loop building): 1→A, 2→D, 3→E, 4→B, 5→C
91. C — 2 stars
92. A — touching, even diagonally
93. B — region (outlined shape)
94. A — all empty
95. C — empty
96. A — in that row
97. placement under spacing and counting constraints
98. exactly 1 star
99. must be stars (for a 2-star puzzle)
100. no
    Matching (placement & spacing): 1→D, 2→A, 3→C, 4→E, 5→B
101. A — one placement forces the next, and so on
102. D — remove it as a candidate in the shared units
103. A — guessing
104. C — cannot be 5
105. D — reduce the candidates for other cells
106. C — the fewest candidates
107. lose those digits as candidates
108. no cell is currently forced
109. one line within a box, removing it elsewhere on that line
110. reaches the answer by pure logic
    Matching (propagation): 1→E, 2→D, 3→B, 4→A, 5→C
111. A — even or odd
112. C — even number of times
113. D — 0 or 2 (even)
114. D — impossible there

115. B — the white cells form one connected graph
116. B — walking between white cells through shared edges
117. an inside and an outside
118. inside
119. counts that must be even or odd
120. it can't alternate perfectly
    Matching (parity): 1→B, 2→B, 3→E, 4→D, 5→A
121. D — 2
122. C — 2
123. D — 3
124. B — 4
125. A — 3
126. D — 1
127. 3
128. 4
129. 4
130. 3
    Matching (partitions): 1→A, 2→C, 3→A, 4→C, 5→C
131. B — logically forced
132. C — shows it breaks a rule, ruling it out
133. D — they all agree on one cell's value
134. C — is 4
135. D — eliminating candidates with proofs
136. B — no rule can ever be broken by it
137. two lines that share a digit's positions
138. pairs, pointing, or chains
139. always reach the unique answer
140. you never hit a dead end to undo

Matching (proof): 1→D, 2→E, 3→A, 4→C, 5→B

141. D — exactly one solution
142. B — the 'avoid two solutions' deduction
143. B — two valid solutions
144. C — not well-formed
145. B — confirming only one solution exists before publishing
146. B — the solution is forced and unique'
147. well-made puzzles guarantee it
148. easier but still unique
149. whole puzzle (clues + rules together)
150. must be fixed (add a clue)
    Matching (uniqueness): 1→B, 2→E, 3→C, 4→D, 5→A
151. D — 3
152. A — 1 and 2
153. D — 1-2
154. C — 5
155. C — 1
156. D — shading (blacking out) cells
157. 4 (the tallest)
158. three of its four edges on the loop
159. 2 stars
160. one placement forces the next, and so on
    Matching (synthesis): 1→C, 2→B, 3→D, 4→A, 5→E
161. 2, 3, 1! Column rules force it: column 1 can't repeat 1, column 2 can't repeat 2, column 3 can't repeat 3.
162. The rule is "double each time," so the next is 32!
163. Green! If red and blue are both ruled out, only green remains.
164. The rule is "square numbers" (1x1, 2x2, 3x3...), so the next is 36!

165. Either 3 or 5! You've eliminated three options, leaving exactly two possibilities.
166. 48! The rule is "double each time," and 24 doubled is 48.
167. 3! The left column (3 + 7 = 10) works, and the bottom row needs 7 + 3 = 10.
168. Each number is the sum of the two before it (the Fibonacci rule), so the next is 13!
169. Because it always knew its place -- row and column!
170. Because it preferred to reason things out, cell by cell!
171. Because it was hiding in the grid, waiting to be found!
172. Because it told each cell exactly what it couldn't be!
173. Because each symbol only shows up once per row and column!
174. Because one good clue can unlock a whole grid!
