

Treasure of Classic
and Modern Puzzles

Pencil 'n' Paper Puzzles

1 2 3 4 5 6 7 8 9 = 100

9 8 7 6 5 4 3 2 1 = 100

Example:

$$1 + 2 + 34 - 5 + 67 - 8 + 9 = 100$$

Up to 100

by Henry E. Dudeney and Martin Gardner

The nine digits 1 through 9 are written out in a row in ascending order as shown in the upper row of the illustration. The object is to insert between the digits, without changing their positions in the row, several arithmetical signs so that to get exactly a hundred as the result. From the four arithmetical signs you can use only plus (+) and minus (-). The solution with six signs is shown as an example in the lower right corner of the illustration. But can you find a solution where three signs are used only?

No less interesting and harder is the "reverse" puzzle when the digits are in descending order as shown in the lower row of the illustration. The same rules as to the previous puzzle are applied, except that this time the four signs (again + and - only) have to be used. Can you find this solution as well?

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$$\boxed{1} \boxed{2} \boxed{3} - \boxed{4} \boxed{5} - \boxed{6} \boxed{7} + \boxed{8} \boxed{9} = 100$$

$$123 - 45 - 67 + 89 = 100$$

$$98 - 76 + 54 + 3 + 21 = 100$$

$$\boxed{9} \boxed{8} - \boxed{7} \boxed{6} + \boxed{5} \boxed{4} + \boxed{3} + \boxed{2} \boxed{1} = 100$$

Up to 100 (solution)

The solutions to both puzzles are shown in the illustration.

The first puzzle was proposed by Henry E. Dudeney many years ago and was a little bit modified by Martin Gardner decades later. We've chosen only that its version where it is required to use the minimum number of signs.

The second puzzle was proposed by Martin Gardner as the logical development to the original one.