

# The Josephus Problem

In 67AD, Josephus Flavius, commander of Galilee, and 40 of his soldiers, were besieged in a cave by a Roman army. Rather than be captured, the 41 soldiers decided to end their own lives...



They formed a circle, numbering themselves from 1 to 41. Number 1 took the sword and killed number 2, then passed the sword to number 3, who killed number 4. They continued this until only one person was remaining...



Clever Josephus worked out which position he had to be in to be the last remaining soldier. Can you?

Size of group	2	3	4	5	6	7	8	9	10	11	12	13
Position of last person	1	3	1	3	5	7	1	3	5	7	9	11

Size of group	14	15	16	17	18	19	20	21	22	23	24	25
Position of last person	13	15	1	3	5	7	9	11	13	15	17	19

The aim is to find a pattern and then a rule that gives the position of the last person for any group size. What have you found?

The position of the last person is always odd. The position of the last person is the odd number sequence starting at 1, but it resets each time the size of the group reaches a power of 2.

What position did Josephus take in order to be the last soldier standing?

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