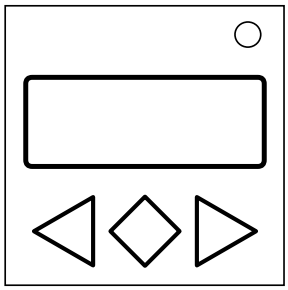
On the Subject of Coordinates



Column first or row first?

Picture a two-dimensional grid of rows and columns. To disarm this module, determine the size of the grid, determine the positions on the grid that are indicated by the module, and find out which position is duplicated.

Use the left and right arrows on the module to cycle through the clues. One of the clues indicates the size of the grid, the rest is a set of positions on the grid. Select one of the two clues that refer to the same grid position and use the middle button to submit it. Then select the other of those two clues and submit it.

To determine the size of the grid, find the clue that is represented in any of the formats described in Table 1. The italicized letters in the table stand in for a number on the module.

The grid locations may be notated in any of the formats listed in Table 2. The module may also describe locations using words such as “top”, “bottom”, “left”, “right”, “up”, “down”, “center”, “middle”, cardinal directions or clockface directions.

Table 1: grid size formats

Format	How to interpret
x	The number *x* is a product of two primes. The grid’s width is the larger prime, the height the smaller.
(x)	Same as *x*, but width and height are swapped.
x×y	*x* is the width, *y* the height of the grid.
x by y	*x* is the height, *y* the width of the grid.
x*y	*x* is the total size of the grid, *y* the height.
x : y	*x* is the total size of the grid, *y* the width.

Table 2: grid location formats

[x,y]	Column, then row; top-left is [0,0].
letter number	Column, then row; top-left is A1.
<x, y>	Row, then column; top-left is <0, 0>.
x, y	Row, then column; top-left is 1, 1.
(x,y)	Column, then row; bottom-left is (0,0).
letter-number	Column, then row; bottom-left is A-1.
"x, y"	Row, then column; bottom-left is "0, 0".
x/y	Row, then column; bottom-left is 1/1.
[x]	Cell number in scanline order[1]; top-left is [0].
xth	Cell number in scanline order[1]; top-left is 1st.
#x	Cell number in Cartesian order[2]; bottom-left is #1.
四十七	Cell number in Chinese reading order[3]; top-right is 一. See Table 3 for Chinese numerals reference. The example shown here represents the number 47.

Table 3: Chinese numerals

一	1	六	6
二	2	七	7
三	3	八	8
四	4	九	9
五	5	十	10

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[1] Scanline order, also known as reading order, starts at the top-left, moves right across the row, and then continues likewise with each row from top to bottom.

[2] Cartesian order, also known as geometric order, starts at the bottom-left, moves right across the row, and then continues likewise with each row from bottom to top.

[3] Traditional Chinese reading order starts at the top-right, moves down the column, and then continues likewise with each column from right to left.