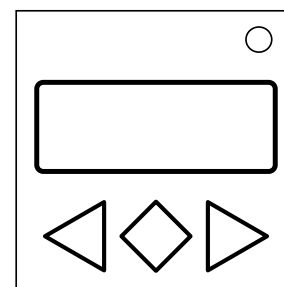


## On the Subject of Coordinates

*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 illegal, then select the only legal position.



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, only one of which is legal. Use the middle button to submit your answer.

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.

To determine the illegal locations, first obtain a list of numbers as follows:

- Put each digit in the serial number on the list.
- For each indicator in alphabetical order, put a number on the list as indicated by Table 2. Add 1 to the number if the indicator is lit.
- Then, for each port in alphabetical order, put a number on the list as indicated by Table 3.
- Finally, put the number 2 on the list.

Now start with a blank grid of the size determined earlier. Mark off illegal cells as you go through the list. Start in the top left corner and advance from cell to cell in scanline order<sup>[1]</sup>. If you reach the bottom right, wrap back to the top left. For each number in the list, count that many unmarked cells ignoring cells already marked off, then mark off the cell you land on. Move to the next unmarked cell and then move on to the next number in the list.

Finally, select the only legal grid location offered by the module. The locations may be notated in any of the formats listed in Table 5. The module may also describe locations using words such as “top”, “bottom”, “left”, “right”, “up”, “down”, “center”, “middle”, cardinal directions or clockface directions.

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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.

**Table 1**

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

**Table 2**

BOB	5	FRQ	2	SIG	4
CAR	4	IND	0	SND	1
CLR	2	MSA	3	TRN	3
FRK	1	NSA	0		

**Table 3**

DVI-D	5	RJ-45	3
Parallel	2	Serial	1
PS/2	0	Stereo RCA	4

**Table 4**

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

**Table 5**

<b>[<i>x</i>,<i>y</i>]</b>	Column, then row; top-left is [0,0].
<b><i>letter number</i></b>	Column, then row; top-left is A1.
<b>&lt;<i>x</i>, <i>y</i>&gt;</b>	Row, then column; top-left is <0, 0>.
<b><i>x</i>, <i>y</i></b>	Row, then column; top-left is 1, 1.
<b>(<i>x</i>,<i>y</i>)</b>	Column, then row; bottom-left is (0,0).
<b><i>letter-number</i></b>	Column, then row; bottom-left is A-1.
<b>"<i>x</i>, <i>y</i>"</b>	Row, then column; bottom-left is "0, 0".
<b><i>x</i>/<i>y</i></b>	Row, then column; bottom-left is 1/1.
<b>[<i>x</i>]</b>	Cell number in scanline order <sup>[1]</sup> ; top-left is [0].
<b><i>x</i>th</b>	Cell number in scanline order <sup>[1]</sup> ; top-left is 1st.
<b>#<i>x</i></b>	Cell number in Cartesian order <sup>[2]</sup> ; bottom-left is #1.
<b>四十七</b>	Cell number in Chinese reading order <sup>[3]</sup> ; top-right is 一. See Table 4 for Chinese numerals reference. The example shown here represents the number 47.