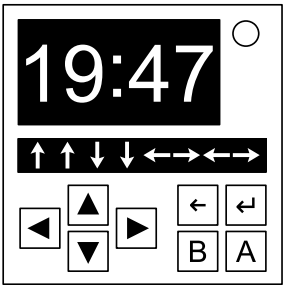


On the Subject of the Gamepad

Oh, the layout of the buttons on this thing takes me back to my childhood! Except I didn't expect to see that on a time bomb, even. Play time is over, I suppose.

See Appendix MathConcepts: Mathematical Concepts for more information.



- Two 2-digit numbers will appear on the top LCD display.
The bottom has eight keys: the input keys ($\blacktriangleleft\blacktriangle\blacktriangledown\blacktriangleright AB$), Return, and Backspace.
- Determine the correct command, made of two subcommands, to input, depending on the properties of the two numbers. Use the first match.
- The two numbers are notated x and y . Individual digits are notated as $abcd$. A number followed by n means a multiple of that number.

Global Overrides	<ul style="list-style-type: none">• If $x = 11n$, switch the first keypress with the second, and the fifth with the seventh.• If $a = 1 + d$, switch the third and fourth keypresses, as well as the sixth and eighth.• If x or y is a highly composite number, switch the order of the subcommands.• If x and y are perfect squares, flip the entire sequence.
Apply all matches <u>after</u> determining the two commands.	

First Subcommand		Second Subcommand	
x is prime	$\blacktriangle\blacktriangle\blacktriangledown\blacktriangledown$	y is prime	$\blacktriangleleft\blacktriangleright\blacktriangleleft\blacktriangleright$
$x = 12n$	$\blacktriangle A \blacktriangleleft\blacktriangleleft$	$y = 8n$	$\blacktriangledown\blacktriangleright B \blacktriangle$
$a+b = 10$ AND serial number is odd	$AB \blacktriangleleft\blacktriangleright$	$c-d = 4$ AND bomb has Stereo RCA	$\blacktriangleright A \blacktriangledown\blacktriangledown$
$x = 6n + 3$ OR $x = 10n + 5$	$\blacktriangledown \blacktriangleleft A \blacktriangleright$	$y = 4n + 2$ OR bomb has lit ind. FRQ	$B \blacktriangle \blacktriangleright A$
$x = 7n$ AND $y \neq 7n$	$\blacktriangleleft\blacktriangleleft \blacktriangle B$	$y = 7n$ AND $x \neq 7n$	$\blacktriangleleft\blacktriangleleft \blacktriangledown A$
$x = c \times d$	$A \blacktriangle \blacktriangleleft\blacktriangleleft$	y is a perfect square	$\blacktriangle \blacktriangledown B \blacktriangleright$
x is a perfect square	$\blacktriangleright \blacktriangleright A \blacktriangledown$	$y = a \times b$	$A \blacktriangle \blacktriangleleft \blacktriangledown$
$x = 3n - 1$ OR bomb has unlit ind. SND	$\blacktriangleright AB \blacktriangle$	$y = 4n - 1$ OR bomb has PS/2 port	$\blacktriangle BBB$
$60 \leq x < 90$ AND bomb has no batteries	$BB \blacktriangleright \blacktriangleleft$	$c > d$ AND bomb has 2 or more batteries	$AA \blacktriangle \blacktriangledown$
$x = 6n$	$ABA \blacktriangleright$	$y = 5n$	$BAB \blacktriangleleft$
$x = 4n$	$\blacktriangledown\blacktriangledown \blacktriangleleft \blacktriangle$	$y = 3n$	$\blacktriangleright \blacktriangle \blacktriangle \blacktriangleleft$
else	$A \blacktriangleleft B \blacktriangleright$	else	$B \blacktriangle A \blacktriangledown$

Appendix Math Concepts: Mathematical Concepts

This appendix contains a brief overview of some mathematical concepts used in the Gamepad module.

Prime Numbers

A prime number is a counting number (positive whole number) that can only be divided by 1 and itself. In other words, there is no way to share a prime number of donuts equally among any number of friends (unless you have as many friends as donuts!).

Prime numbers below 100 are: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97.

Perfect Squares

A perfect square is any whole number multiplied by itself.

Perfect squares below 100 are: 1, 4, 9, 16, 25, 36, 49, 64, 81.

Highly Composite Numbers

A highly composite number (HCN) has more divisors than any smaller positive integer. For example, 6 can be divided by 1, 2, 3, and 6, which is more than the last HCN, 4, which has 1, 2, and 4. 8 can be divided by 1, 2, 4, and 8, but a smaller number (6) has an equal number of divisors, so it is not a HCN.

Highly composite numbers below 100 are: 1, 2, 4, 6, 12, 24, 36, 48, 60.