On the Subject of Functions

How in the heck do you get 8 from 1 and 3?

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1 2 3 4 5    ○
6 7 8 9 0
Q C ,        S

1234 , 1234
123456789012
123 X 123
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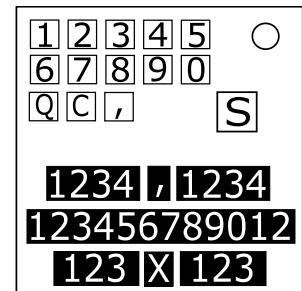
- A Query Function will be randomly selected from the 42 on List 1, and the bottom displays will show two numbers from 1 to 999, with a letter in between.
- You may enter digits using the numerical keypad; these digits will appear in the center display as they are entered. Entering a digit with twelve digits on the display will cause the leftmost digit to be erased to make room for the new digit.
- You may note the number entered as "a", the first number of a bivariate (two-variable) function, by pressing the comma button ",". This will cause the number entered (only the four least significant digits will be entered as the variable if more than four are displayed) to appear in the top left display, and a comma to appear in the top middle display. You may then enter a second, different number in the same way you entered the first. **If, when querying, both displayed input numbers are the same, or if either number is 0, a strike will be given.**
- Once both numbers have been entered, press the Query button "Q". This will put the second number (only the four least significant digits will be entered as the variable if more than four are displayed) in the top right display, and make it known as "b". This will also replace your input with the Query Function's output, using your inputted numbers. Any calculated answers, including the final answer necessary to disarm the module, will use only the twelve most significant digits, and will have all decimals dropped ONLY right before display unless a function mentions otherwise. Pressing the comma will have no effect once it is displayed, and pressing Query will have no effect until the comma is entered or if it was just pressed.
- Press the Clear button "C" to clear all top and middle displays and allow new variables to be entered.
- Find the Query Function being used by querying one or more times and using List 1, then use the letter on the bottom row along with Table 2, finding an offset to apply to that Query Function's number, to find your Final Function. Wrap around as necessary.
- Submit the answer to the Final Function that uses the bottom displays as input by entering the answer using the keypad, then pressing the Submit button "S".
- The most significant digits of a number are its leftmost, or most valuable, so the tens digit is more significant than the ones digit.

List 1: The Functions

#0: Digital root of ((a + b) squared)
#1: a times b, even-position digits removed
#2: 8 concatenated with the number of odd digits, concatenated with the number of even digits
#3: Digital root of (a+b)
#4: (a + b) modulo 1000
#5: (a + b) squared
#6: Highest digit
#7: Number of different digits missing
#8: (Larger times 2) minus Smaller
#9: Sum of times each digit appears in bomb serial number
#10: Number of even numbers
#11: Dots found in digits when using Morse code
#12: a plus b concatenated with |a minus b|
#13: (Integer of (Larger divided by Smaller)) modulo 1000
#14: Digital root of |a minus b|
#15: Lit indicators times 63
#16: a times b
#17: (a times b) modulo 1000
#18: (sum of digits in a) times (sum of digits in b)
#19: Smaller minus (Larger modulo Smaller)
#20: a times b, odd-position digits removed
#21: All digits missing concatenated from 1 to 0
#22: Lunar Addition
#23: a times b, odd digits removed
#24: (Digit concatenated with 2 if even and 1 if odd) for all digits in order
#25: floor(sqrt(a) + sqrt(b))
#26: Digital root of (a times b)
#27: Digits in a and b times 202
#28: 808
#29: 810 minus (Number of numbers below 100)
#30: Larger modulo Smaller
#31: Sum of letters in each digit
#32: Product of first and last digit of a and first and last digit of b
#33: floor(sqrt(a + b))
#34: Product of first and last digits overall
#35: (a squared) + (b squared)
#36: (a plus b) modulo 12
#37: |a minus b|
#38: (Digit concatenated with the number of times that digit appears) for all digits in order
#39: a + b
#40: Larger divided by Smaller
#41: (a + b) times (Larger divided by Smaller)

Table 2: Letter Adjustments

Condition	True	False
A: KBU or M in SN?	+6	−4
B: Battery, indicator, or port count = 2?	+2	−3
C: First character in SN a digit?	+5	−4
D: Lit BOB indicator?	+8	−8
E: Unlit BOB indicator?	+6	−2
F: First character in SN a letter?	+6	−5
G: Parallel port but no Serial port?	+1	−5
H: At least one empty port plate?	+1	−3
I: No batteries?	+1	+5
J: Vowel in SN?	+5	−3
K: Indicators > 3?	+4	−1
L: Battery count even?	+6	+7
M: Ports > indicators?	+3	−7
N: More lit than unlit indicators?	+3	−5
O: Indicators > batteries?	+6	−1
P: Indicator count even?	+2	−3
Q: ERI or S in SN?	+1	−3
R: Exactly 3 letters in SN?	+3	−2
S: Batteries > ports?	+2	+4
T: Batteries > 4?	+4	+1
U: Lit and unlit indicator count equal?	+2	−2
V: JQX or Z in SN?	+7	+1
W: At least three ports?	+3	−5
X: No indicators?	+3	−3
Y: 4+ SN digits?	+4	−1
Z: No ports?	+5	−1

Appendix F: Math (and other) Stuff

Absolute Value or |x|: The distance between x and 0. |2 − 6| = 4.

Concatenate: To link or join. "Cheese" concatenated with "burger" yields "Cheeseburger"; 7 concatenated with 3 yields 73.

Cubed: Multiplied by itself, then by itself again. 2 cubed is 8.

Digital Root: The continual summing of a number's digits until a single digit is obtained. The digital root of 129 is 3.

Lunar Addition: Addition but in each place (units, tens, etc.), take the higher number instead of adding. In Lunar Addition, 184+229 = 289.

Modulo: The remainder from a division problem. 10 modulo 3 is 1.

Power: The number of times to multiply a number by itself. Cubing a number is the same as raising it to the third power.

sqrt(x): Square root. sqrt(9) = 3. Technically it's also −3 but you have to stay positive while defusing bombs so this module will never consider negative numbers here.

floor(x): Round down.

Squared: Multiplied by itself. 5 squared is 25.

Zero: 0 is an even number. If there is no output, the output will become 0.

Digits in Morse Code

zero ▬▬▬▬▬	five ●●●●●
one ●▬▬▬▬	six ▬●●●●
two ●●▬▬▬	seven ▬▬●●●
three ●●●▬▬	eight ▬▬▬●●
four ●●●●▬	nine ▬▬▬▬●