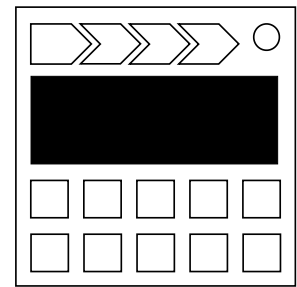











On the Subject of S.E.T. Theory

Me \subseteq Your Mom Tonight.












- This module displays a set expression screen, a stage counter on the top, and ten buttons on the bottom. Nine of the buttons will display symbols from [S.E.T.](#) The bottom right button is the submit button.
- Sets A, B, and C contain S.E.T. symbols as their elements. Determine the values of the three sets with the rules below.
- Using the currently displayed set expression, toggle all of the symbols that are present in the set defined on the screen and press the submit button. An incorrect submission will strike and reset the stage. There are four stages to the module.


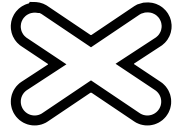
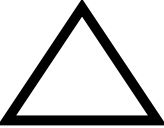

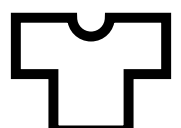

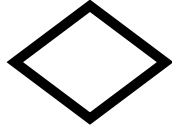
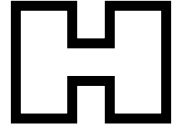

Set A consists of all the symbols whose conditions are true in the table below.

	There are three or more batteries		There is a module with the word "Forget" in its name		The sum of the digits in the serial number is a multiple of 3
	The last digit of the serial number is a prime number.		There is an empty port plate.		There is a module with the word "Arrows" in its name.
	There is a needy module.		There is an S, E, or T in the serial number.		There are no unlit indicators.

Set B consists of all the symbols in the positions on the module in reading order whose columns in the table below contain exactly one true condition. Row 1 conditions are true if the button in that position displays that symbol. Row 2 conditions are true if the serial number contains none of the characters present.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th
								
W,O,4	B,S,3	H,A,1	T,R,5	C,N,2	E,X,9	L,U,7	F,I,6	P,J,8

To find the elements of Set C, start in the grid below at the symbol displayed last in reading order on the module. This is the first element of C. Then, process the symbols in reverse reading order on the module. For each symbol on the module, move in the grid in the direction that the symbol in the grid is from the center, and add the symbol landed on to C. If the symbol on the module is in the center of the grid, do not move and continue to the next symbol. Once you reach a square in the grid twice, stop processing the symbols on the module.

Appendix SW4G: Set Theory

This appendix outlines set operations using numbers as elements instead of symbols. In the examples below, $A = \{1, 2, 3\}$, $B = \{3, 4, 5\}$, $C = \{1, 6, 7\}$, and the universal set of all possible elements $U = \{1, 2, 3, 4, 5, 6, 7\}$.

Union ($A \cup B$)

- Returns all the elements that are either in A or B. $A \cup B = \{1, 2, 3, 4, 5\}$. $B \cup C = \{1, 3, 4, 5, 6, 7\}$.

Intersection ($A \cap B$)

- Returns all the elements that are in both A and B. $A \cap B = \{3\}$. $B \cap C = \emptyset$.

Difference ($A - B$)

- Returns all the elements that are in A but not in B. $A - B = \{1, 2\}$. $B - A = \{4, 5\}$.
 $B - C = B$.

Symmetric Difference ($A \triangle B$)

- Returns all the elements that are in exactly one of the two sets. In set notation, $A \triangle B = (A - B) \cup (B - A)$. $A \triangle C = \{2, 3, 6, 7\}$. $B \triangle C = \{1, 3, 4, 5, 6, 7\}$.

Complement(!A)

- Returns all the elements that are in U but not in A. $!A = \{4, 5, 6, 7\}$. For the purposes of this module, U = the nine S.E.T. symbols.

Set operations can also be analyzed as having logical equivalents, being:

Union	OR
Intersection	AND
Difference	NOT IMP
Symmetric Difference	XOR
Complement	NOT