

Zap-It I

Zap-It has a secret process to determine output numbers for input numbers. It selects a different process for each problem. Zap-It works like this:

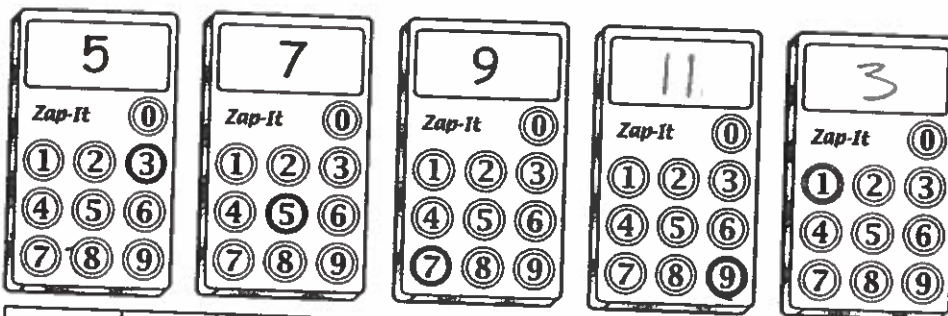
1. To enter an input number press any 0 to 9 number key.
2. Zap-It displays the corresponding output number on the screen.
3. Zap-It continues to use the same secret process for the entire problem.

Your challenge is to discover the secret process that is used in the three examples. Input numbers are shown inside heavy black circles; output numbers appear on the screen. Use the secret process to show the output numbers for the remaining two examples.

- a. Enter the five (input, output) number pairs in the table.
- b. Use the number pairs to build a graph.
- c. In your own words describe the secret process.
- d. Translate your description into algebraic shorthand using x to represent input and $f(x)$ to represent output. The general form is:

$$f(x) = mx + b$$

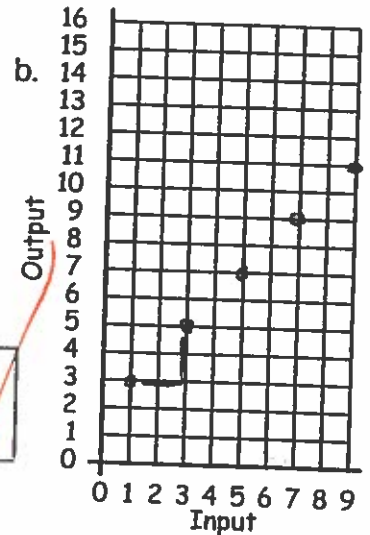
1.



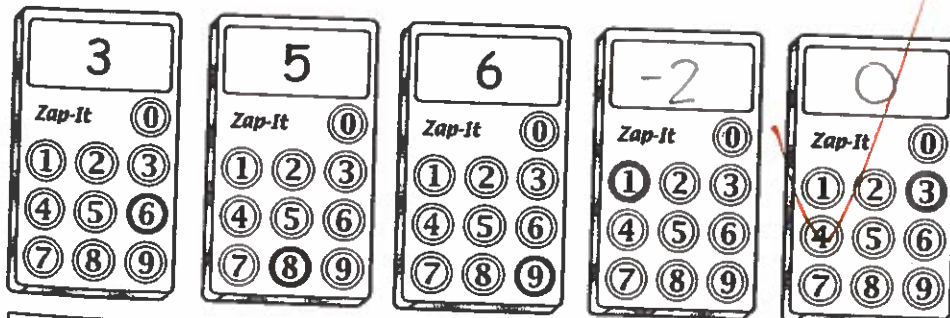
Input	3	5	7	9	11
Output	5	7	9	11	3

d. Secret Code
 $f(x) = 1x + 2$

c. The output is the input times 1 plus two.
 ex: $1(3) + 2 = 3 + 2 = 5$
 input output



2.

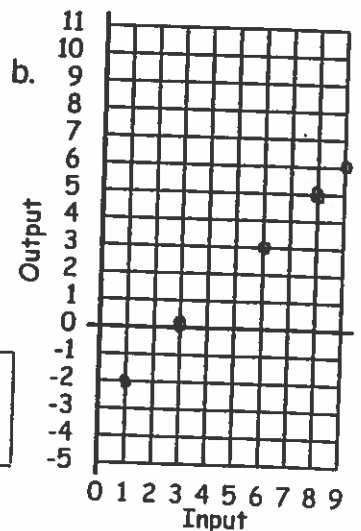


Input	6	8	9	1	3
Output	3	5	6	-2	0

d. Secret Code
 $f(x) = 1x + (-3)$

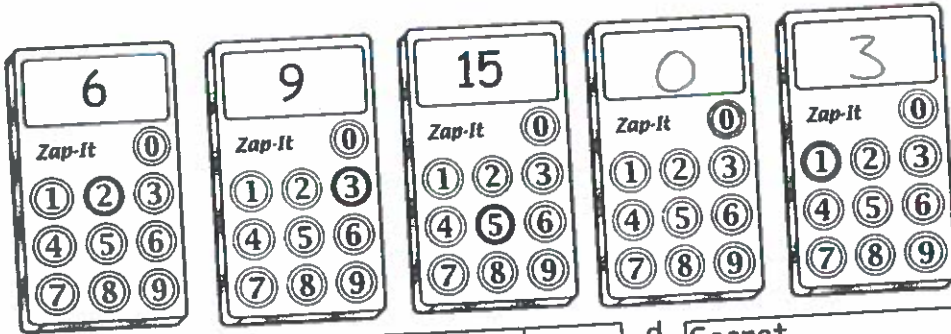
c. The output is the input times 1 plus negative 3.

ex: $1(6) + (-3) = 6 + (-3) = 3$



Zap-It 1

3.

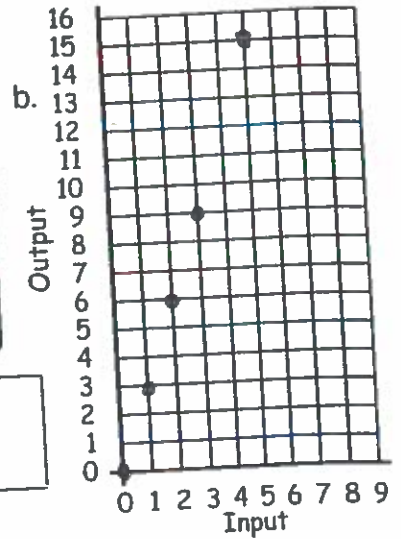


a.

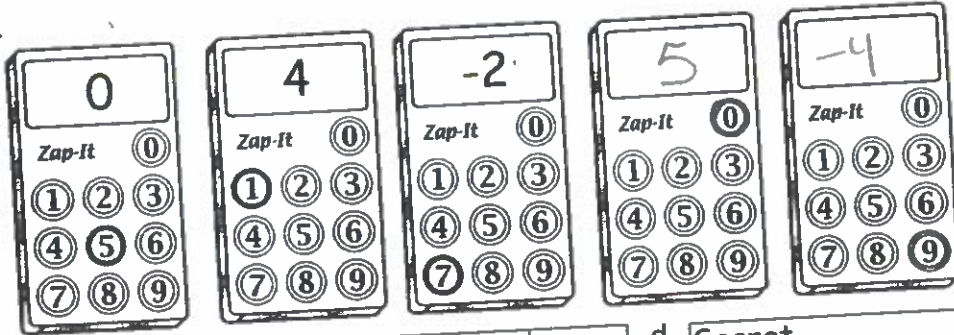
Input	2	3	5	0	1
Output	6	9	15	0	3

d. Secret Code
 $f(x) = 3x$

c. The output is the input times 3.



4.

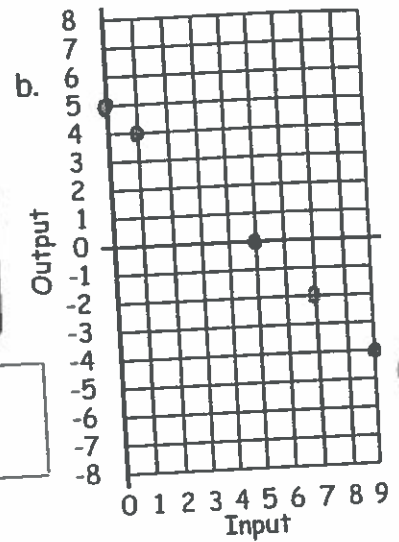


a.

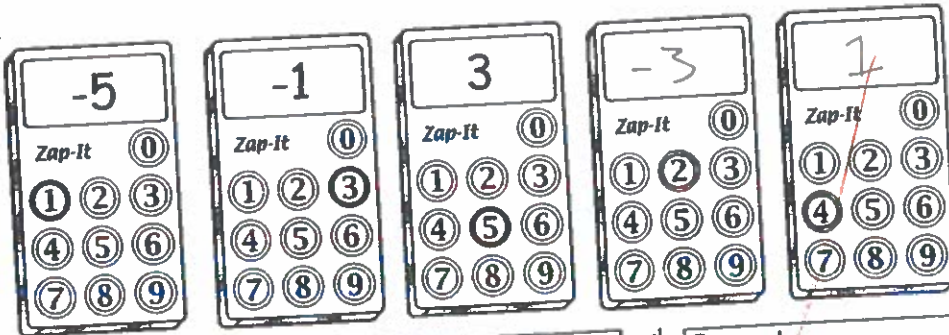
Input	5	1	7	0	9
Output	0	4	-2	5	-4

d. Secret Code
 $f(x) = (-1)x + 5$

c. The output is the input times negative one plus five.



5.



a.

Input	1	3	5	2	4
Output	-5	-1	3	-3	1

d. Secret Code
 $f(x) = 2x + (-7)$

c. The output is double the input plus negative 7.

