Exploration:

Drag the point on the left number-line and observe what happens in the right number-line in each task (Functions Machines (Tasks 1, 2, 3) – GeoGebra).

(a) Complete the table

Task 1	
Left number-line	Right number-line

Task 2	
Left number-line	Right number-line

Task 3	
Left number-line	Right number-line

(b) Explain for each task how dragging the point in the left number-line changes the way the point in the right number-line moves.

Task 1:

Task 2:

Task 3:

(c) Is it possible to drag the red point in the right number-line? Explain.

(d) How does the point in the right number-line change, when the point in the left number-line varies by one unit?

Task 1:

Task 2:

Task 3:

(e) Which number in the left number-line corresponds to 19 in the right number-line?

Task 1:

Task 2:

Task 3:

(f) Which number in the right number-line corresponds to 100 in the left number-line?

Task 1:

Task 2:

Task 3:

(g) Compare the movement of the green arrow in the three tasks. (mark traces of the arrow)

Activity 1

Drag the point on the left number-line and observe what happens in the right number-line in each task (Functions Machines (Tasks 4, 5, 6) – GeoGebra).

(a) Complete the tables.

Task 4	
Left number-line	Right number-line

Task 5	
Left number-line	Right number-line

Task 6	
Left number-line	Right number-line

(b) How does the point in the right number-line change, when the point in the left number-line varies by one unit?

Task 4:

Task 5:

Task 6:

Compare the steepness of the variation in the three tasks.

(c) Which number in the left number-line corresponds to 19 in the right number-line?

Task 4:

Task 5:

Task 6:

(d) Which number in the right number-line corresponds to 100 in the left number-line?

Task 4:

Task 5:

Task 6:

(e) Describe in words the rule of the correspondence between the two number lines. How did the variation of the right number-line when the left number-line changes by 1, help you to figure out the rule?

Task 4:

Task 5:

Task 6:

Activity 2:

A. Fill in the tables below.

INPUT	OUTPUT
0	3
5	13
7	17
10	23
12	
15	
	11
	43

INPUT	OUTPUT
3	4
6	13
9	22
2	1
	34
x	
	y

INPUT	OUTPUT
0	9
3	18
4	25
7	58
	109
x	
	y

INPUT	OUTPUT
0	-1
5	0
10	1
12	$1\frac{2}{5}$
	2
x	
	y

B. Fill in the tables below, using your own rules.

INPUT	OUTPUT

INPUT	OUTPUT

C. A function machine has created input and output values. Below, the set of input and output values are shown. However, the correspondence between the input and output values has been mixed up.

Set of Input values	Set of Output values
0	37
1	31
3	22
5	46
7	1
10	4
12	16
15	10

(a) Draw lines to match the input value with the correct output value.

(b) What is the rule between the input and output values?

Activity 3:

Write in words or symbols the rule for each task in the Table.

Functions Machines (Tasks 1, 2, 3) – GeoGebra

Suggest one real-life scenario that can be modelled by each Task. Explain what each one of the number-lines models in each task.

Task	Rule	Real-life scenario	Number-lines
1			
2			
3			

Assessment Tasks:

1. Match the scenarios with the matching double number line.

    a. In a math test, for each correct answer students got 2 points. If John got 56 points, how many correct answers did he have?

    b. b. The building A has a height of x meters. How tall will building B be if it is 4 meters higher than building A?

    c. A phone company has prepared a new calling package, in which there is a fixed charge of €1 and a charge of €2 per call hour.

    d. In a math competition, all students received 1 point for their participation and two points for each correct answer they gave. If Joanna had a total of 99 points, how many correct answers did she get?

    e. Alice has €4 more than Anne. If Anne has X euros, how many euros does Alice have?

    f. In a basketball game, the "Rocket" team scored 39 two-point baskets. How many points did the "Rocket" team score at the end of the game?