Find a rule – one step

1 Whitney makes a pattern of triangles using sticks.

Complete the table below.

Number of triangles	1	2	3	4	5	10	30
Number of sticks	3	6	9	12	15	30	90

2 Complete the tables.
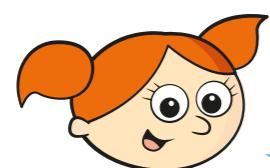
To find the number of wheels, you multiply the number of bicycles by 2

a)

Number of bicycles	1	2	5	9	12	16
Number of wheels	2	4	10	18	24	32

b)

Number of ants	1	2	5	3	4	16
Number of legs	6	12	30	18	24	96

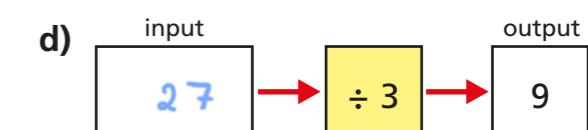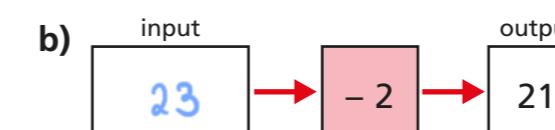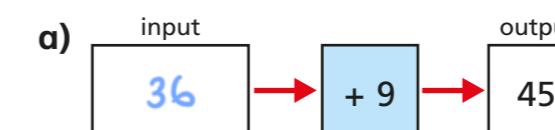Explain how to find the number of legs.

Multiply the number of ants by 6

3 Calculate the outputs for the function machines below.

a) input 50 → + 5 → output 55

b) input 50 → − 7 → output 43

c) input 50 → × 2 → output 100

d) input 50 → ÷ 10 → output 5
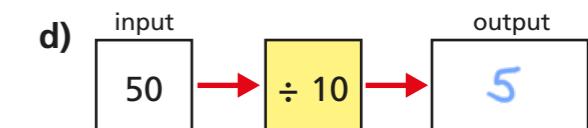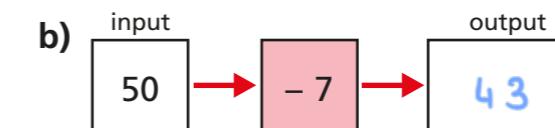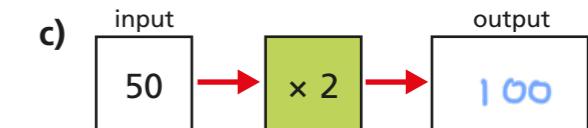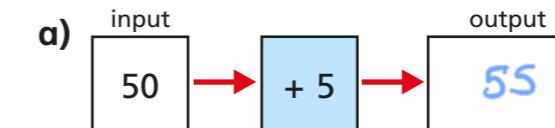
4 Calculate the inputs for the function machines.

a) input 36 → + 9 → output 45

b) input 23 → − 2 → output 21

c) input 35 → × 10 → output 350

d) input 27 → ÷ 3 → output 9

5 Write the missing functions in the function machines.

a)

input 2 → → output 10
input 5 → ×5 → output 25
input 10 → → output 50

b)

input 8 → → output 15
input 0 → +7 → output 7
input −3 → → output 4
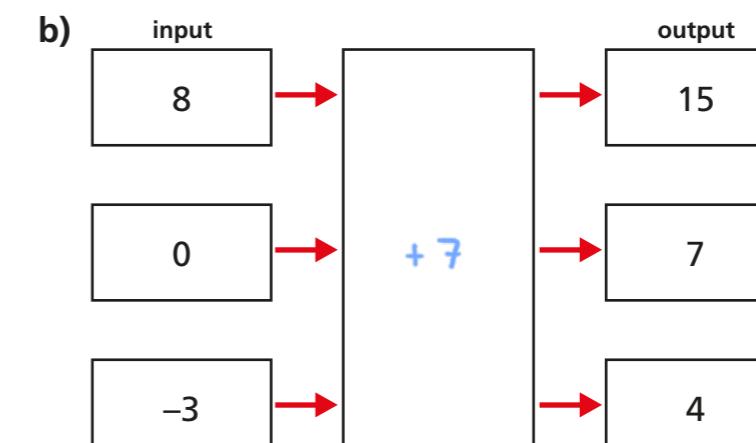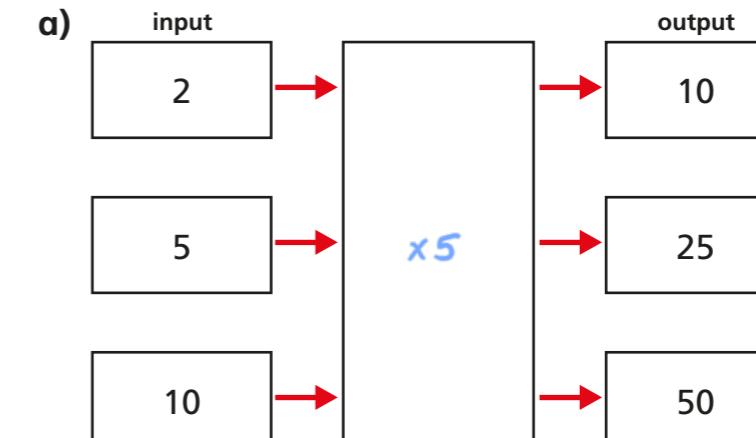
6 Calculate the missing inputs and outputs for the function machine.

input | | output
8 → **+10** → 18
4 → → 14
5.5 → → 15·5
-2 → → 8
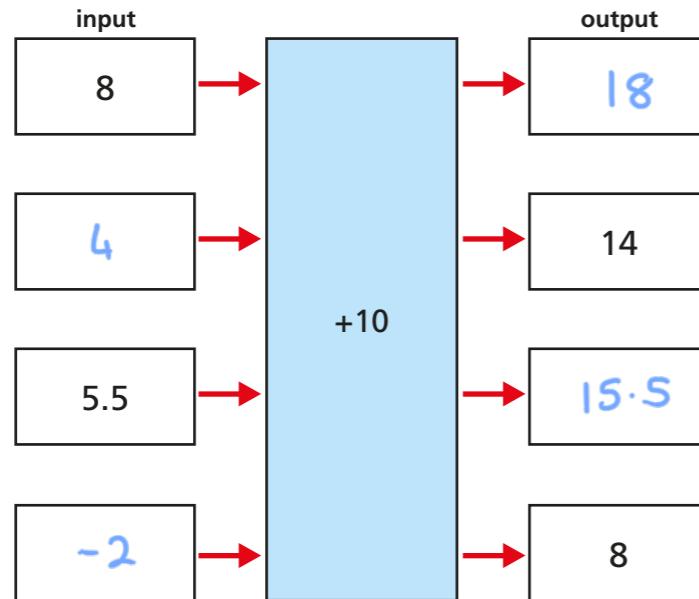
7 Look at the function machine.

input | | output
15 → → 65
20 → → 70
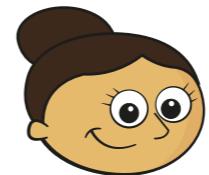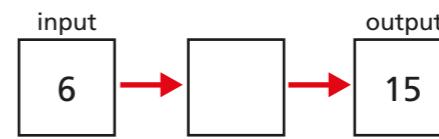50 → → 100
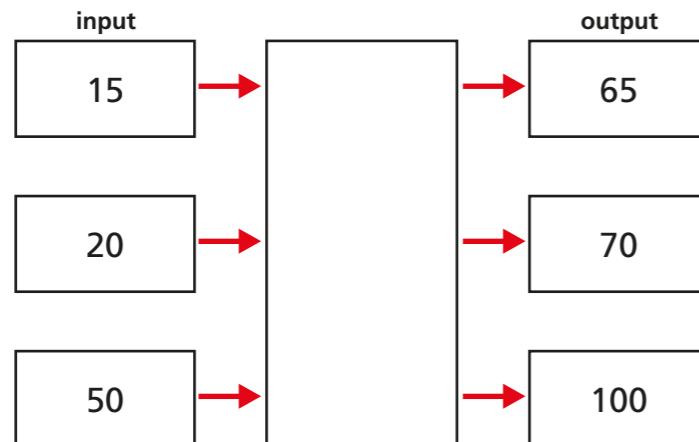
a) What is the output, if the input is zero? **50**

b) What is the input, if the output is zero? **- 50**

8 Here is a function machine.

input → output
6 → ☐ → 15

Dora: The rule is add 9
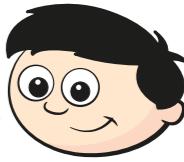
Dexter: The rule is multiply by 2.5

Who do you agree with? ___**Both**___

Explain your answer.

9 In a function machine, if the input is 3 and the output is 12, what could the function be?

Write two different functions and complete the table of outputs for each function.

input → output
3 → **x4** → 12

Input	3	4	5	10	20	100
Output	12	**16**	**20**	**40**	**80**	**400**

input → output
3 → **+9** → 12

Input	3	4	5	10	20	100
Output	12	**13**	**14**	**19**	**29**	**109**