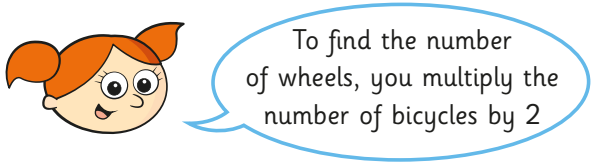
Find a rule – one step

1 Whitney makes a pattern of triangles using sticks.

Complete the table below.

Number of triangles	1	2	3	4	5	10	
Number of sticks							90

2 Complete the tables.



a)

Number of bicycles	1	2	5			16
Number of wheels	2			18	24	

b)

Number of ants	1	2	5			16
Number of legs		12		18	24	

Explain how to find the number of legs.

3 Calculate the outputs for the function machines below.

a) input 50 → + 5 → output ☐

b) input 50 → − 7 → output ☐

c) input 50 → × 2 → output ☐

d) input 50 → ÷ 10 → output ☐

4 Calculate the inputs for the function machines.

a) input ☐ → + 9 → output 45

b) input ☐ → − 2 → output 21

c) input ☐ → × 10 → output 350

d) input ☐ → ÷ 3 → output 9

5 Write the missing functions in the function machines.

a)

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

b)

input		output
8	→ ☐ →	15
0	→ ☐ →	7
−3	→ ☐ →	4

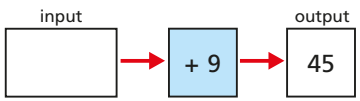
6 Calculate the missing inputs and outputs for the function machine.

input		output
8	→	☐
☐	→	14
5.5	→ +10 →	☐
☐	→	8

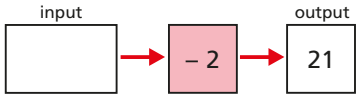
Find a rule – one step

4 Calculate the inputs for the function machines.

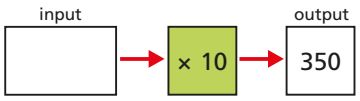
a)



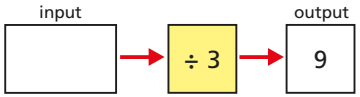
b)



c)

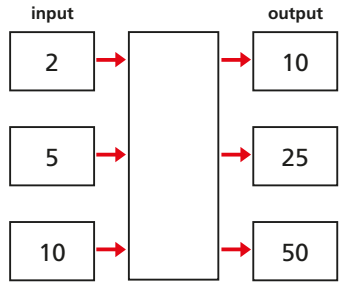


d)

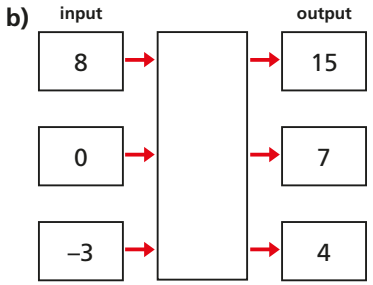


5 Write the missing functions in the function machines.

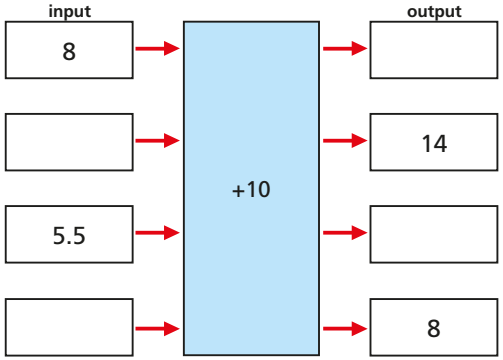
a)



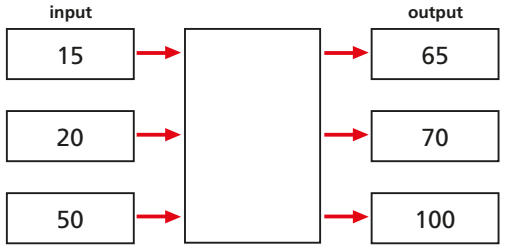
b)



6 Calculate the missing inputs and outputs for the function machine.



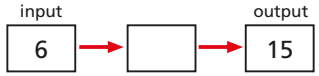
7 Look at the function machine.

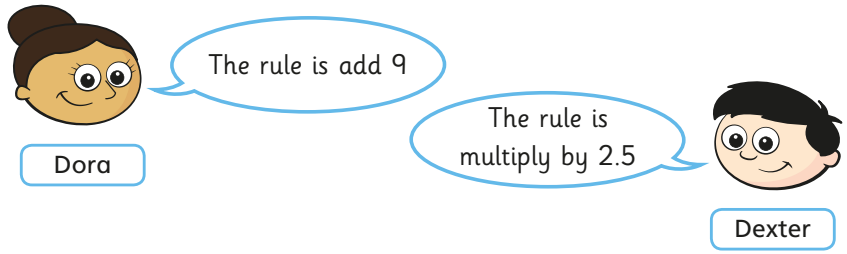


a) What is the output, if the input is zero?

b) What is the input, if the output is zero?

8 Here is a function machine.



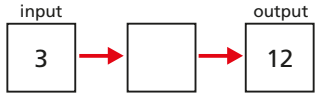


Who do you agree with?

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	3	4	5	10	20	100
Output	12					