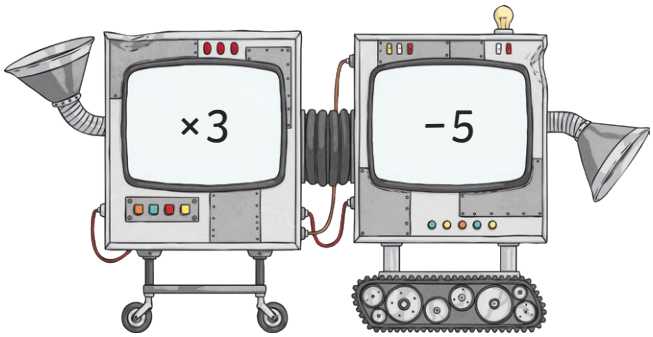
Each of these function machines has two steps. Give the missing inputs and outputs for each machine.

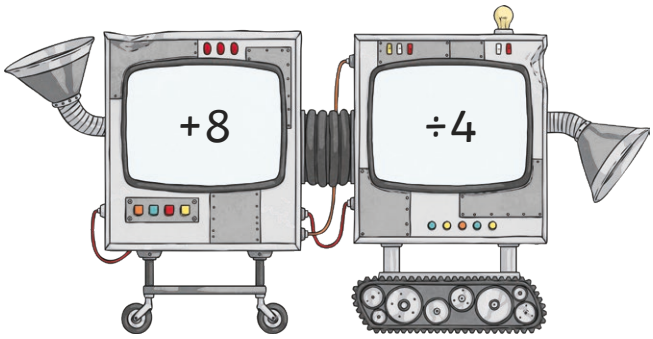
1)

Input	Function	Function	Output
12	×3	−5	c)
2000			d)
7.2			e)
a)			7
b)			199
$2\frac{1}{4}$			f)



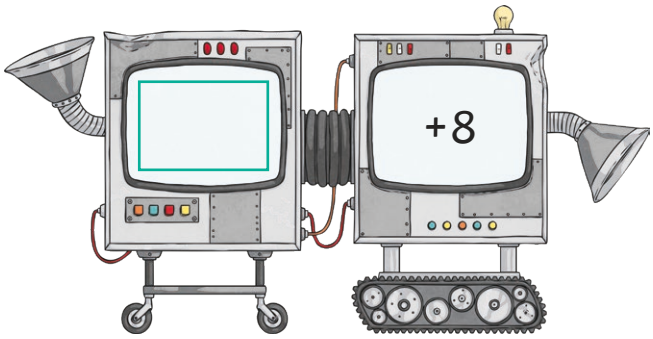
2)

Input	Function	Function	Output
20	+8	÷4	c)
72			d)
132			e)
a)			6
b)			16
0.8			f)

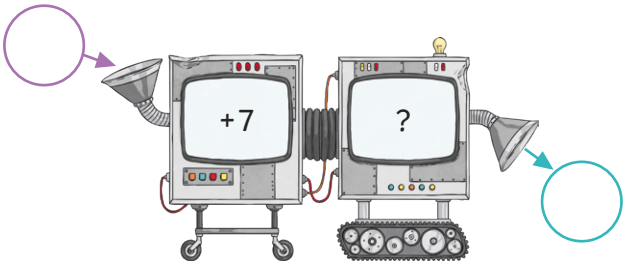


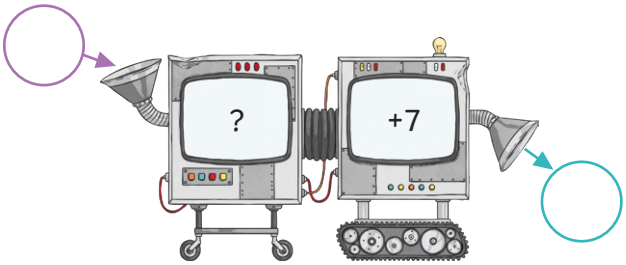
3) Give the missing function and missing inputs for this two-step function machine.

Input	Function	Function	Output
12		+8	11
20			13
a)			14
b)			88
c)			9.2
d)			17.75



4) Look at these two-step function machines.





Do you agree or disagree with each child's statement? Explain why.

Ruby

If I add the function −6 into both function machines then both machines will give the same answer.

Leo

If I add the function ×4 as the missing function in both machines, they will both give the same answer.

1) a) 4
   b) 68
   c) 31
   d) 5995
   e) 16.6
   f) $1\frac{3}{4}$

2) a) 16
   b) 56
   c) 7
   d) 20
   e) 35
   f) 2.2

3) Function ÷4
   a) 24
   b) 320
   c) 4.8
   c) 39

4) Leo: This is incorrect, as each machine will give a different answer if we do what Leo suggests. Adding 7 to a number, then multiplying by 4, will give a different answer to multiplying a number by 4, then adding 7 to it.

   Ruby: This is correct, as the pair of function machines will now have the function of +1.