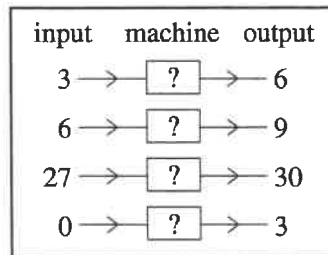


## Mystery machines

The following inputs go into a mystery machine ...

3, 6, 27 and 0.

The diagram shows the outputs produced ...



The 'mystery' machine has added three to produce the outputs because it links *all* the inputs to the outputs in the same way.

The mystery machine was ... input  $\rightarrow$   $+3$   $\rightarrow$  output

**Exercise 5**

What operation is taking place in each of these machines?

1.  $\times 5$

input	output
1 → ? →	5
2 → ? →	10
3 → ? →	15

2.  $\div 9$

input	output
63 → ? →	7
54 → ? →	6
27 → ? →	3

3.  $-2$

input	output
10 → ? →	8
9 → ? →	7
8 → ? →	6

4.  $+3$

input	output
3 → ? →	6
8 → ? →	11
7 → ? →	10

5.  $\div 2$

input	output
12 → ? →	6
2 → ? →	1
50 → ? →	25

6.  $\times 3$

input	output
19 → ? →	57
9 → ? →	27
7 → ? →	21

7.  $\times 10$

input	output
2 → ? →	20
5 → ? →	50
8 → ? →	80

8.  $\times 7$

input	output
9 → ? →	63
4 → ? →	28
8 → ? →	56

9.  $\times 8$

input	output
8 → ? →	64
1 → ? →	8
3 → ? →	24

For Questions 10 to 15 copy and complete the number machines after working out the operation for each.

10.

input	output
1 → $+6$ →	7
7 → $+6$ →	13
13 → $+6$ →	19
20 → $+6$ →	26

11.

input	output
2 → $\times 4$ →	8
3 → $\times 4$ →	12
4 → $\times 4$ →	16
10 → $\times 4$ →	40

12.

input	output
12 → $-7$ →	5
7 → $-7$ →	0
18 → $-7$ →	11
20 → $-7$ →	13

13.

input	output
0 → $+11$ →	11
3 → $+11$ →	14
12 → $+11$ →	23
20 → $+11$ →	31

14.

input	output
3 → $\div 3$ →	1
9 → $\div 3$ →	3
12 → $\div 3$ →	4
15 → $\div 3$ →	5

15.

input	output
0 → $\times 10$ →	0
5 → $\times 10$ →	50
4 → $\times 10$ →	40
7 → $\times 10$ →	70