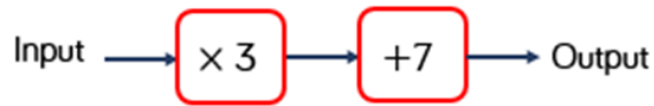
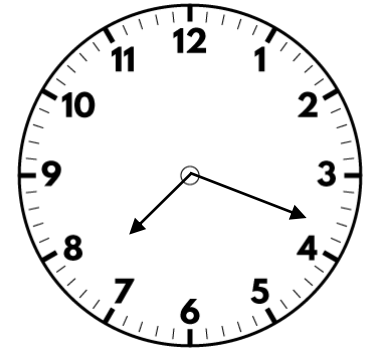


1) What is the output if the input is 12?



43



2) Work out 40% of 60

24

3) What is the 4 worth in 6.145?

4 hundredths

4) Write down two factors of 20

Any two of 1, 2, 4, 5, 10 and 20

# RECALL

Qu	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	10 <sup>th</sup>	20 <sup>th</sup>	100 <sup>th</sup>	n <sup>th</sup>
1	5	10	15	20					
2	7	14	21	28					
3	4	8	12	16					
4	12	24	36	48					

I challenge YOU to do it!



Qu	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	10 <sup>th</sup>	20 <sup>th</sup>	100 <sup>th</sup>	n <sup>th</sup>
5					45				
6			45						
7	45								
8	0.25	0.5	0.75	1					
9	$\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{4}$	3					

# RECALL

Qu	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	10 <sup>th</sup>	20 <sup>th</sup>	100 <sup>th</sup>	n <sup>th</sup>
1	5	10	15	20	25	50	100	500	$n \times 5$
2	7	14	21	28	35	70	140	700	$n \times 7$
3	4	8	12	16	20	40	80	400	$n \times 4$
4	12	24	36	48	60	120	240	1200	$n \times 12$

I challenge YOU to do it!

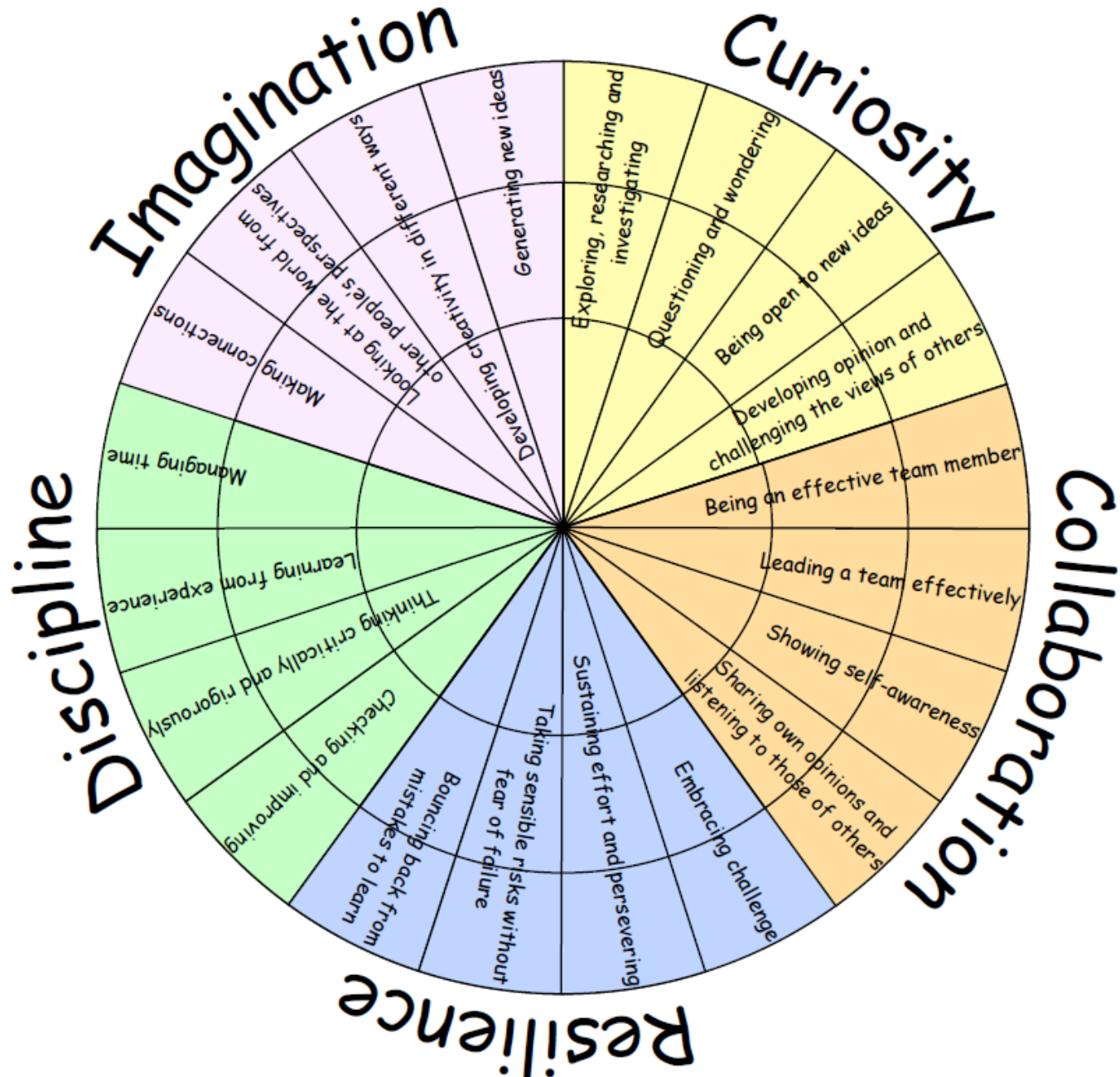


Qu	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	10 <sup>th</sup>	20 <sup>th</sup>	100 <sup>th</sup>	n <sup>th</sup>
5	9	18	27	36	45	90	180	900	$n \times 9$
6	15	30	45	60	75	150	300	1500	$n \times 15$
7	45	90	135	180	225	450	900	4500	$n \times 45$
8	0.25	0.5	0.75	1	1.25	2.5	5	25	$n \times 0.25$
8	$\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{4}$	3	$3\frac{3}{4}$	$7\frac{1}{2}$	15	75	$n \times \frac{3}{4}$

I CAN MAKE  
GENERALISATIONS  
ABOUT TWO STEP  
NUMBER PATTERNS AND  
EXPRESS THEM  
ALGEBRAICALLY

PROPERTIES OF NUMBER (21IV)

# LEARNING HABITS?



There are 7 geese on the lake.  
More geese arrive in pairs.

There will be 100 geese  
if more keep arriving.

Kate

Richard

- 1) More pairs of geese land. Can you draw a table to represent this?
- 2) How many pairs need to arrive for there to be 47 geese on the lake?

Can you create a function machine  
to show this?  
Be careful - it is different to  
yesterday's machines.

**GUIDED PRACTICE**

# INTELLIGENT PRACTICE 1



Continue the sequence below by writing the next three terms:

3, 6, 9, 12, 15,

What am I adding from one number to the next?

The first number in the sequence is...

What is this sequence then?

What would the tenth number in this sequence?

How do you know?

# INTELLIGENT PRACTICE 2



Continue the sequence below by writing the next three terms:

4, 7, 10, 13, 16,

What am I adding from one number to the next?

The first number in the sequence is...

What is this sequence similar to (think about )?

What would the tenth number in this sequence?

How do you know?



# INTELLIGENT PRACTICE 3



Continue the sequence below by writing the next three terms:

2, 5, 8, 11, 14,

What am I adding from one number to the next?

The first number in the sequence is...

What is this sequence similar to (think about )?

What would the tenth number in this sequence?

How do you know?

# INTELLIGENT PRACTICE

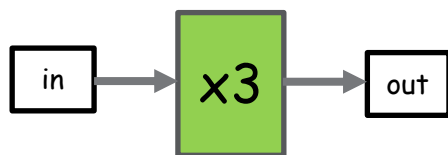
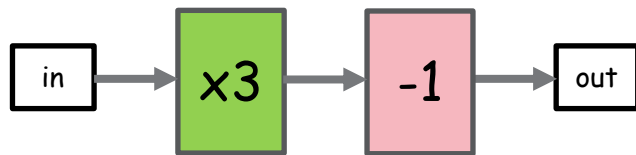
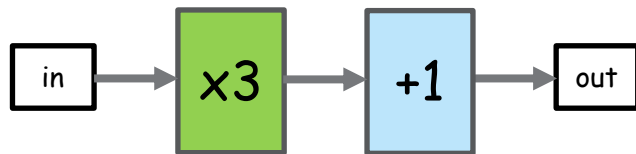
Here are the three sequences from the 1, 2 and 3 Chillies:

3, 6, 9, 12, 15 

4, 7, 10, 13, 16 

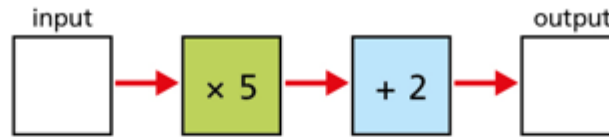
2, 5, 8, 11, 14 

Match these three sequences to the function machines below by dragging the Chillies into the correct box.



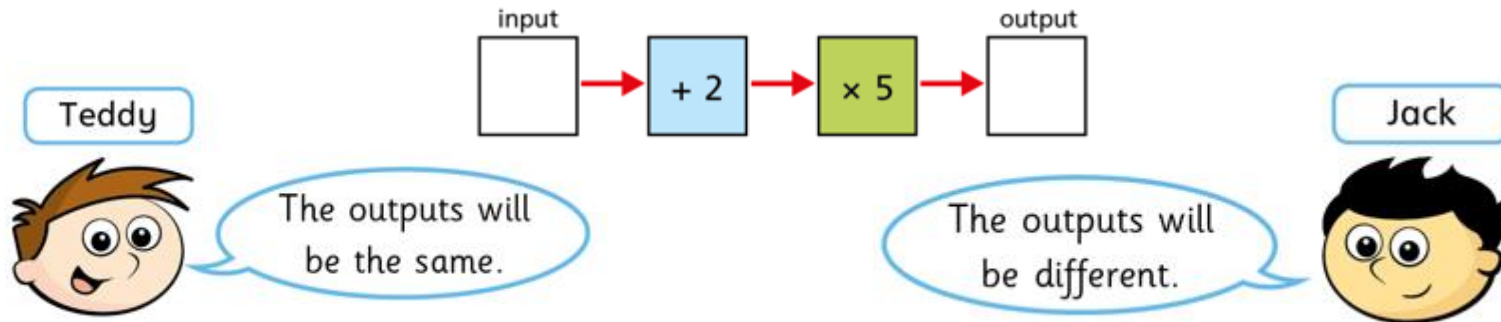
# DIVE DEEPER 1

1) Use the function machine to complete the table:



Input	1	2	3	5	10	50
Output						

2) Here is the same function machine but the steps have been reversed:

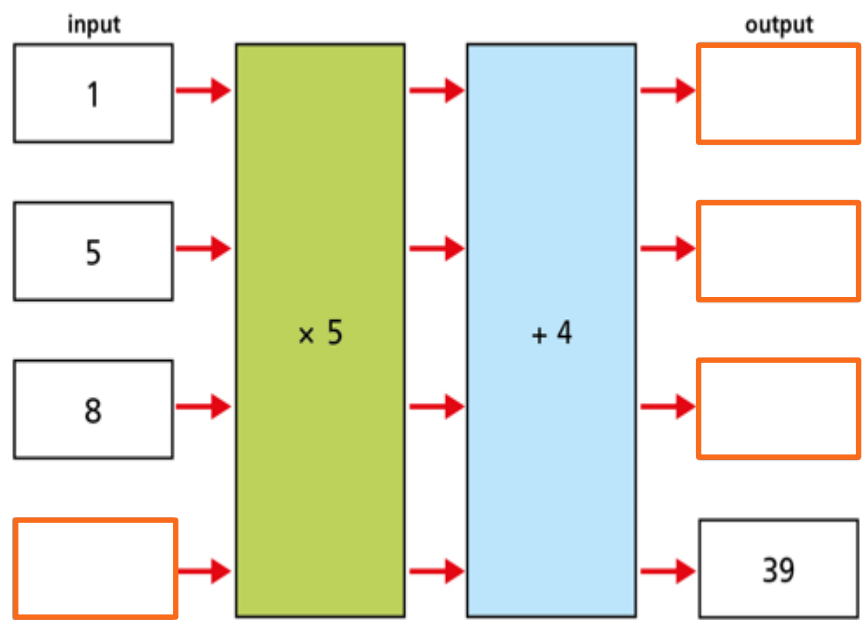


Use this table to decide who is correct:

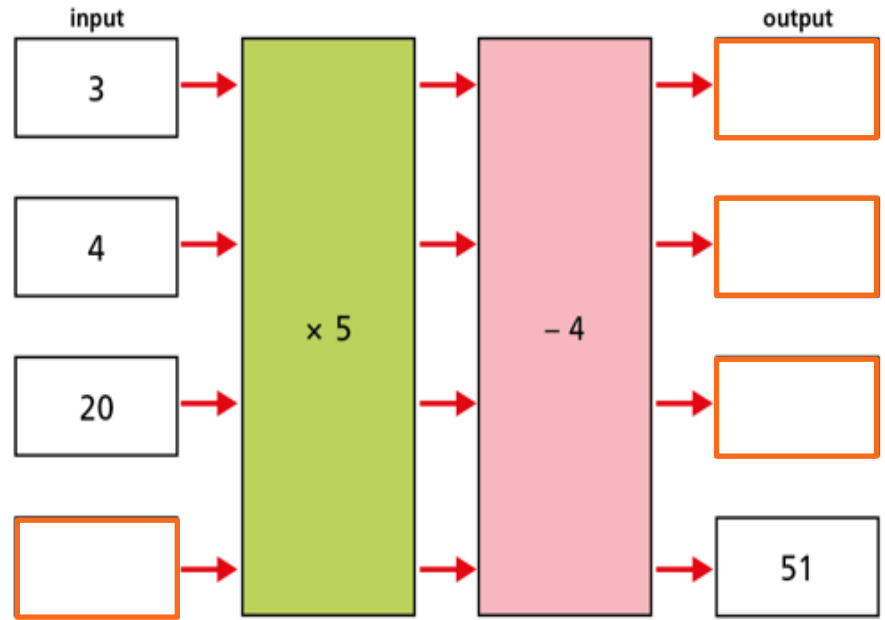
Input	1	2	3	5	10	50
Output						

# DIVE DEEPER 2

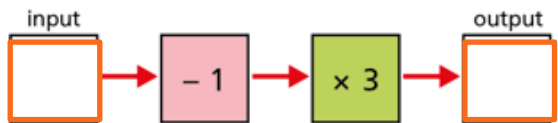
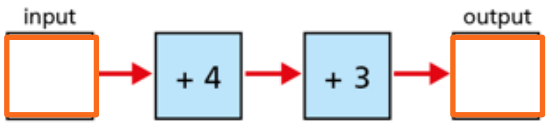
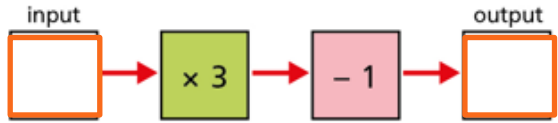
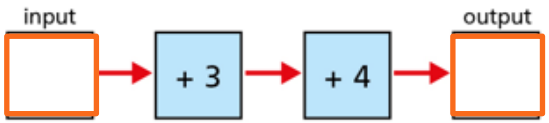
3) Copy and complete the answers here:



4) Copy and complete the answers



5) Decide whether each pair of machines will give the same outputs:



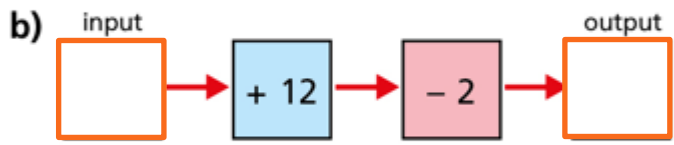
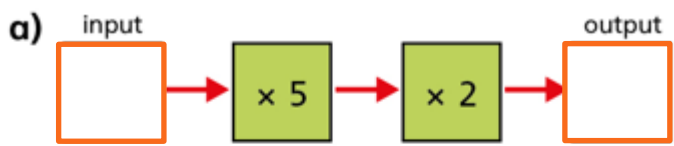
YES/NO?

YES/NO?

Explain:

# DIVE DEEPER 3

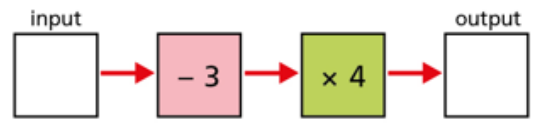
6) Here are three 2-step machines. For each machine, write a single step which will give the same output as the 2 steps.



Can all 2-step machines be written as 1 step machines?

7) Copy and complete the answers here:

Here is a function machine.



a) Complete the table.

Input	10	3	<input type="text"/>	<input type="text"/>
Output	<input type="text"/>	<input type="text"/>	40	280

b) Rosie puts a number into the machine and gets the same number as the output.  
What was Rosie's number?

8) Mr Hall and Mrs Rose order some photos online:

a) Mr Hall orders 16 photos. How much does he pay?

b) Mrs Rose pays £6.05.  
How many photos did she order?



# SELF-ASSESSMENT

- Some will even explain how they can change two-step machines into one-step machines
- Some will explain how changing the steps affects the output
- Most will be able to do the inverse for two-step machines
- All will find the answers for two-step machines

Post-credits question (like in Marvel):



What do the different colours on the function machines mean?