Page 1 - Monday

1 Look at these repeating shape patterns. Draw the last two shapes:

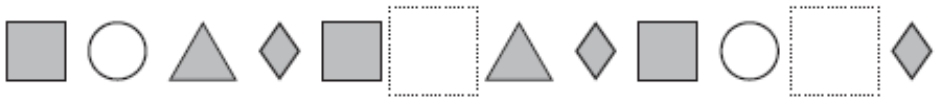
a 

b 

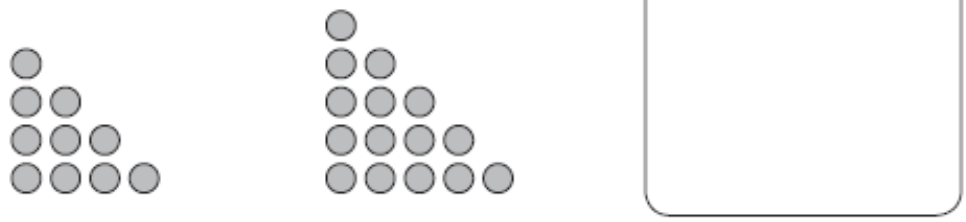
c 

2 In these repeating shape patterns, draw the missing shapes:

a 

b 

3 Complete what comes next in this growing pattern:



4 Look at these repeating shape patterns. Draw the next two shapes:

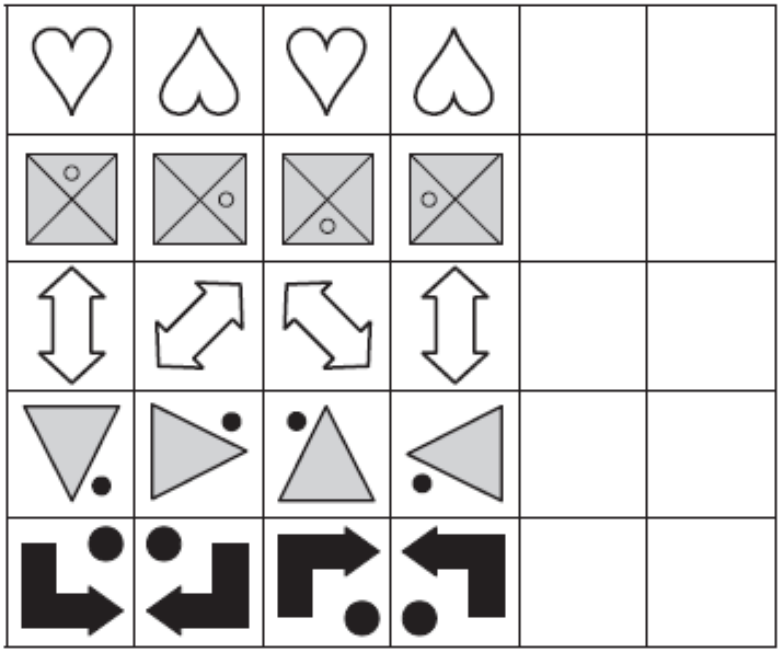
a

b

c

d

e



5 **If the patterns (above) continued, what would the 10th shape be on each row:**

a ☐ b ☐ c ☐ d ☐ e ☐

6 **Write your name by putting each letter in the grid as a repeating pattern. For example, if your name is Ben, you would write:**

1	2	3	4	5	6	7	8	9	10
B	E	N	B	E	N	B	E	N	B

1	2	3	4	5	6	7	8	9	10

a Which letter of your name will be under the letter 32? ☐

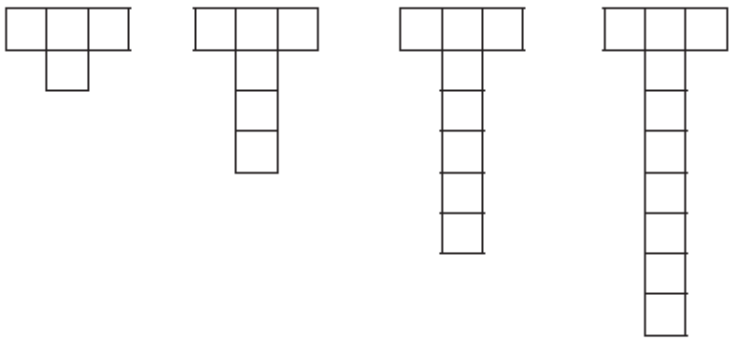
b How did you work this out?

2 **Look at these growing patterns. Complete the table and follow the rule to draw Picture 5:**

a Picture 1 Picture 2 Picture 3 Picture 4 Picture 5

Picture number	1	2	3	4	5
Number of dots	1	3	5	7	
Rule	Picture number × 2 − 1 = Number of dots				

b Picture 1 Picture 2 Picture 3 Picture 4 Picture 5



Picture number	1	2	3	4	5
Number of squares	4	6	8	10	
Rule	Picture number × 2 + 2 = Number of squares				

How many squares will Picture 8 have?

4 **Figure out the missing numbers in each pattern and write the rule.**

a 72 63 ☐ 45 36 ☐ **b** 81 73 65 ☐☐☐

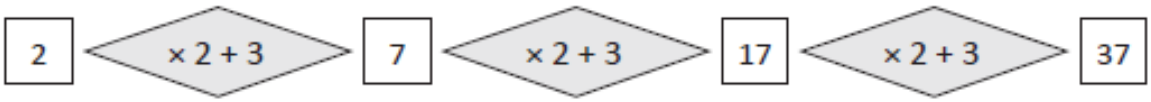
Rule: _____ Rule: _____

c ☐ 49 54 ☐ 64 ☐ **d** 28 35 ☐ 49 56 ☐

Rule: _____ Rule: _____

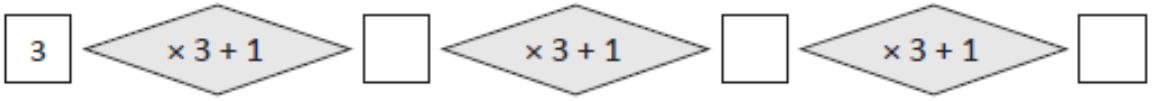
Some number patterns can be formed with two operations each time.

For example:



The rule is to multiply by 2 and add 3 each time.

5 **Complete these number patterns, by following the rules written in the diamond shapes. Describe the rule underneath.**



The rule is _____

6 **Roll a die to make the starting number. Continue the sequence by following the rule:**

a Rule: × 1 + 3 ☐☐☐☐☐☐☐☐

b Rule: × 2 + 1 ☐☐☐☐☐☐☐☐

c Rule: × 2 + 4 ☐☐☐☐☐☐☐☐

When we use number patterns in tables, it can help us to predict what comes next. Look at the table below and how we can use it to predict the total number of sweets needed for any number of children at a party.

This table shows us that 1 sweet bag contains 8 sweets and 2 bags contain 16 sweets. We can see that the rule for the pattern is to multiply the top row by 8 to get the bottom row each time.

Number of sweet bags	1	2	3	4	5	10
Number of sweets	8	16	24	32	40	80

× 8

To find out how many sweets are in 10 bags, we don't need to extend the table, we can just apply the rule.

10 × 8 = 80. So, 10 bags contain 80 sweets. This helps us plan how many sweets are needed for a party.

1 **Complete the table for each problem:**

a Tom receives $5 a week pocket money as long as he does all his chores. How much pocket money does Tom get after 10 weeks?

Weeks	1	2	3	4	5	10
Pocket money	5	10				

b A flower has 7 petals. How many petals are there in a bunch of 10 flowers?

Flowers	1	2	3	4	5	10
Number of petals	7	14				

c A flag has 6 stars. How many stars are there on 10 flags?

Flags	1	2	3	4	5	10
Number of stars	6	12				

d At a pizza party, each person eats 3 pieces of pizza. How many pieces of pizza do 10 people eat?

Guests	1	2	3	4	5	10
Pizza pieces			9	12		

Number patterns in tables can help us with problems like this. Mia is making this sequence of shapes with matchsticks and wants to know how many she will need for 10 shapes.

Shape 1 **Shape 2** **Shape 3**

Shape number	1	2	3	4	5	10
Number of matchsticks	3	6	9	12	15	30

× 3

To find out how many matchsticks are needed for 10 triangles, we don't need to extend the table, we can just apply the function rule:

Number of matchsticks = Shape number × 3

1 **Complete the table for each sequence of matchstick shapes and find the number of matchsticks needed for the 10th shape.**

a Shape 1 Shape 2 Shape 3

Shape number	1	2	3	4	5	10
Number of matchsticks	4					

b Shape 1 Shape 2 Shape 3

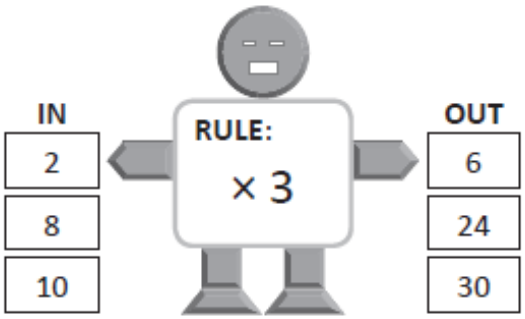
Shape number	1	2	3	4	5	10
Number of matchsticks	6					

c Shape 1 Shape 2 Shape 3

Shape number	1	2	3	4	5	10
Number of matchsticks	7					

This is a function machine.

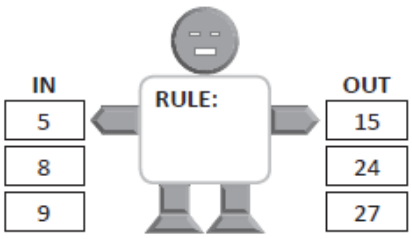
Numbers go in, have the rule applied, and come out again.



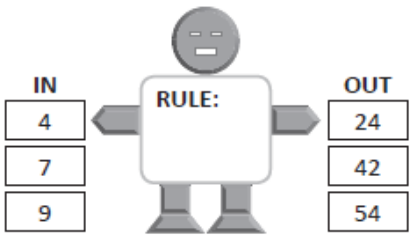
Page 6 – Wednesday (see the bottom of page 5 for instructions)

1. Look carefully at the numbers going *in* these function machines and the numbers coming out. What is the rule?

a

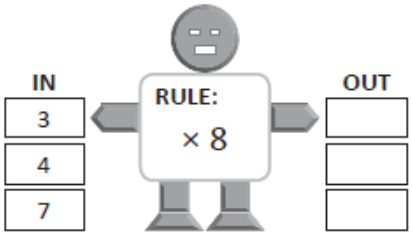


b

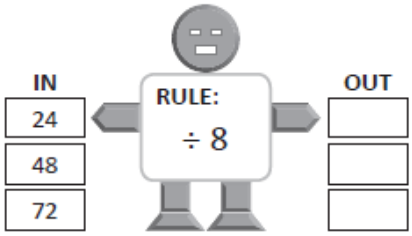


2. What numbers will come *out* of these function machines?

a

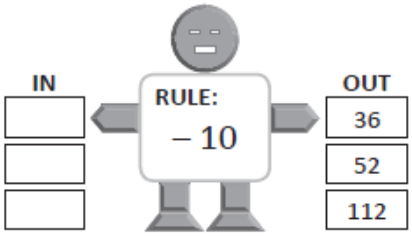


b

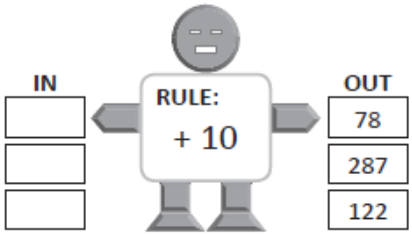


3. What numbers go *in* to these number function machines?

a

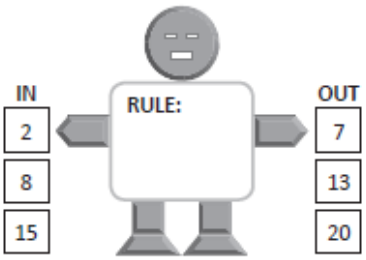


b

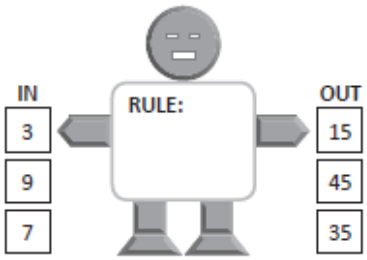


1. Look carefully at the numbers going *in* these function machines and the numbers coming *out*. What rule are they following each time?

a

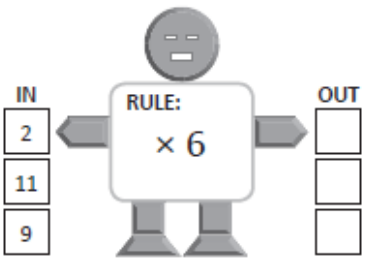


b

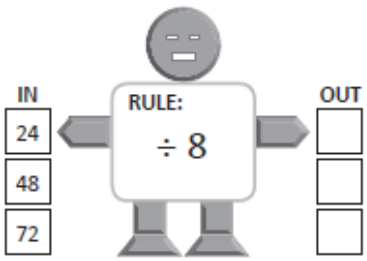


2. What numbers will come *out* of these function machines?

a

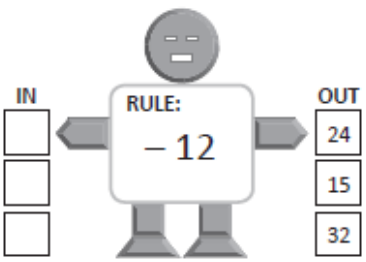


b

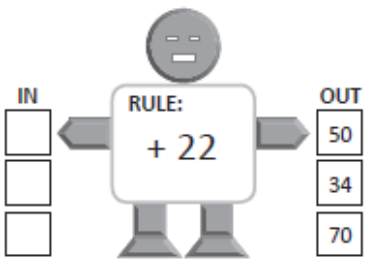


3. What numbers go *in* to these number function machines?

a



b



Page 7 - Thursday

1 **Each child has 4 buttons on their school shirt. Complete the table to show how many buttons different amounts of children have.**

Number of children	1	2	3	4	5	10
Number of buttons	4					

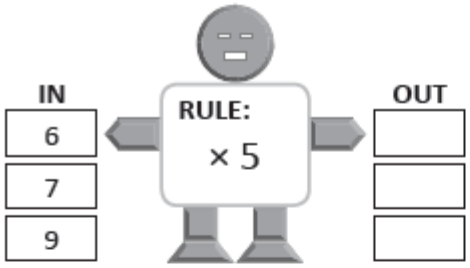
a How many buttons do 20 children have? ☐

b How did you work this out?

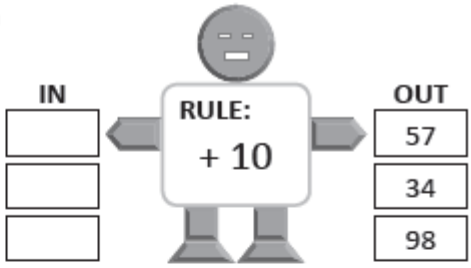
_____

2 **Complete these function machines.**

a



b



3 **Complete the table for each sequence of matchstick shapes and find the number of matchsticks needed for the 10th shape:**

Shape 1 Shape 2 Shape 3

Shape number	1	2	3	4	5	10
Number of matchsticks	6					

4 **Complete these number patterns by looking for skip counting patterns:**

a

7			28	35			

b

	72		54		36		

5 **Colour the skip counting pattern for 4s up to 30.**

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

a If you kept going on a complete hundred grid, would 54 be coloured in?

Yes / No

b How can you tell without using a whole hundred grid?

_____

Page 8 - Thursday

6 **Figure out the missing numbers in each pattern and write the rule:**

a 56 49 ☐ 35 28 ☐ **b** 30 36 42 ☐ ☐ ☐

Rule: _____ Rule: _____

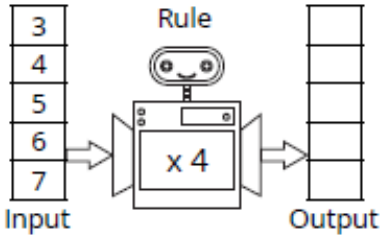
7 **Complete a number sequence for each rule:**

Rules	Sequences					
× 2 + 1	2					
× 2 − 1	2					
× 3 − 1	2					

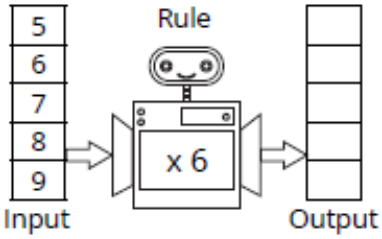
Mark your work on Seesaw before completing the following.

(1) Follow the rule to complete these number patterns.

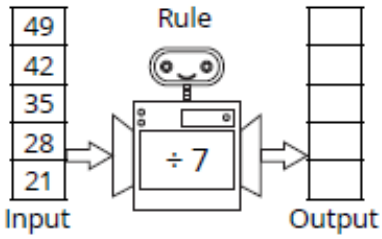
a)



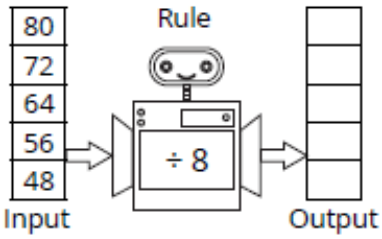
c)



b)

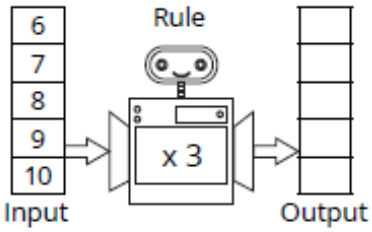


d)

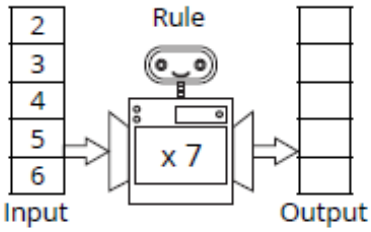


(1) Follow the rule to complete these number patterns.

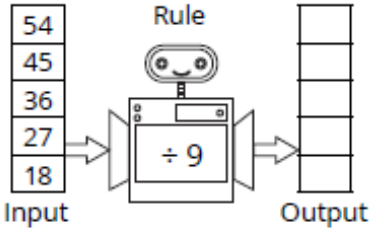
a)



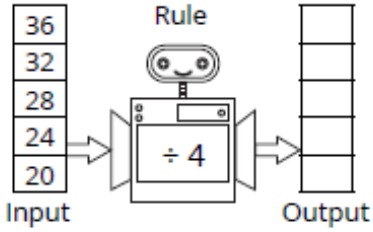
c)



b)



d)



Page 9 - Thursday

(1) Apply the rule to complete the number patterns.

a) Rule: ☆ x 2 = □

☆	1	2	3	4	5	6	7	8
□								

b) Rule: ☆ + 5 = □

☆	1	3	5	7	9	11	13	15
□								

c) Rule: ☆ x 10 = □

☆	1	3	5	7	9	11	13	15
□								

(1) Apply the rule to complete the number patterns.

a) Rule: ☆ x 4 = □

☆	1	2	3	4	5	6	7	8
□								

b) Rule: ☆ + 8 = □

☆	1	3	5	7	9	11	13	15
□								

c) Rule: ☆ x 11 = □

☆	1	3	5	7	9	11	13	15
□								