

1. Determine the rule for the number pattern below, and use it to fill in the missing numbers.

6, 11, 16, 21, 26, 31, 36

2. Use the rule "start at 165 and subtract 3 each time" to:

- a) Find the 50th term in this number pattern.
b) Find which rank the number 30 has in this number pattern.

$$a) t_{50} = 165 - 3 \times 49$$

$$t_{50} = 165 - 147$$

$$t_{50} = 18$$

We must subtract 49 three's, since 49 numbers after the first number is the 50th term.

b) Start at subtract 3 each time

$$165 - \square = 30$$

$$\boxed{135} = 3 \times ?$$

$$\underline{45} \times 3$$

↳ I need 45 more

t_{46}

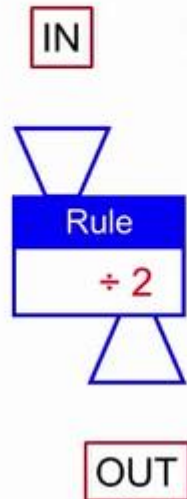
3. How many match sticks are required to form the next shape in the following pattern?



# of matches	6	10	14	18	?
		↖ ↗	↖ ↗	↖ ↗	
		+4	+4	+4	

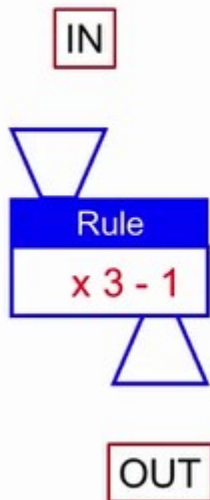
$$18 + 4 = 22 \text{ match sticks.}$$

4. Input the numbers 2, 4, 6, 8 and 10 into the function machine and complete the IN-OUT table below.



IN	OUT
2	1
4	2
6	3
8	4
10	5

5. Use the numbers 3, 4, 5, 6 and 7 and produce a number pattern using the rule $\times 3 - 1$, and plot this pattern on a Cartesian plane.



IN	OUT
3	8
4	11
5	14
6	17
7	20