	NAME:				
	Gr 7		Date:		Time 1 hr
CAPS Reference	2-2 Functions and Relationships				
Topic	2-2-1 Functions – Calculating outputs.				



### 1. Think first! [ 15 mins]

Your school class wants to go on an outing to a Game Park. The entrance fee is R50.00 per person plus R150.00 for the vehicle.

- 1.1 How would you calculate the cost each class has to pay for the outing?
- 1.2 Write this as a rule.
- 1.3 Use your rule to calculate how much the following groups of learners will pay to enter the park?
 

1.3.1 24 people	1.3.2 45 people
1.3.3 62 people	1.3.4 14 people.



### 2. Got it? [10 mins]

#### Creating a rule from a situation.

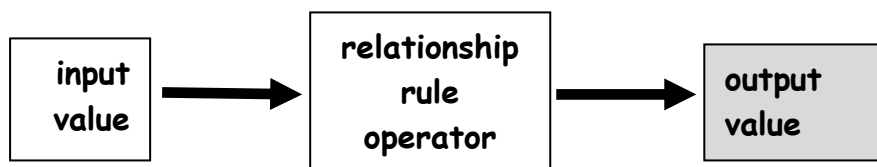
##### Example 1 (from Think first)

- 1.1 To calculate the cost of entering the game park, we would say the number of learners  $\times$  R50 + R150.00 for the vehicle.
- 1.2  $c = R50 \times p + R150$  where  $c =$  cost and  $p =$  a person
- 1.3.1 Cost =  $R50 \times 24 + R150 = R1\ 350$
- 1.3.2 Cost =  $R50 \times 45 + R150 = R2\ 400$
- 1.3.3 Cost =  $R50 \times 62 + R150 = R3\ 250$
- 1.3.4 Cost =  $R50 \times 14 + R150 = R850$

In this situation the number of learners is the **input value**.

The relationship **rule or operator** is  $50p + 150$ .

The output value is the **cost**.



Continued...

**Example 2** You are given inputs and a relationship rule in order to calculate the outputs:

Inputs: {0; 1; 2; 3; 4; 5; 6;}  
 To do: output = 2 times input + 1  
 Rule:  $y = 2x + 1$

Below the rule, input and output numbers are presented in a table.

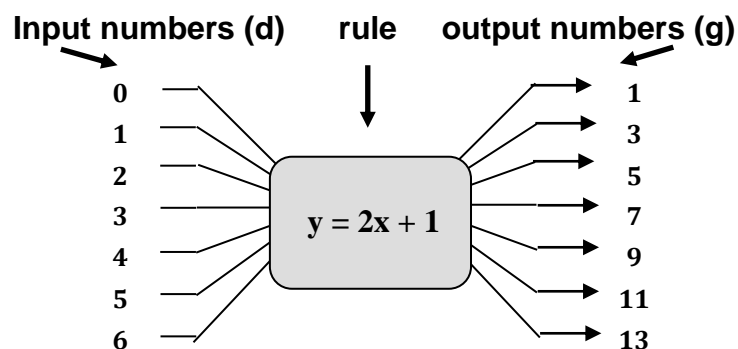
The output numbers have been calculated using the rule.

		Input numbers (x)						
x		0	1	2	3	4	5	6
y ( $y = 2x + 1$ )	rule	1	3	5	7	9	11	13
		Output numbers (y)						

**Calculations:**  $2 \times 0 + 1 = 1$ ;  $2 \times 1 + 1 = 3$ ;  $2 \times 2 + 1 = 5$ ;  $2 \times 3 + 1 = 7$ ;  
 $2 \times 4 + 1 = 9$   $2 \times 5 + 1 = 11$ ;  $2 \times 6 + 1 = 13$

**Example 3**

Here the input, rule and outputs are shown in a flow diagram.



## 2. Go ahead! [ 30 mins]

2.1 Copy and calculate the output values for the following tables:

2.1.1

Given number (n)	0	1	2	3	4	5
Value of the number (v) $v = 3n + 6$						

2.1.2

Given number (p)	0	2	4	6	8	10
Value of the number (v) $v = \frac{1}{2}p + 3$						

## 2.1.3

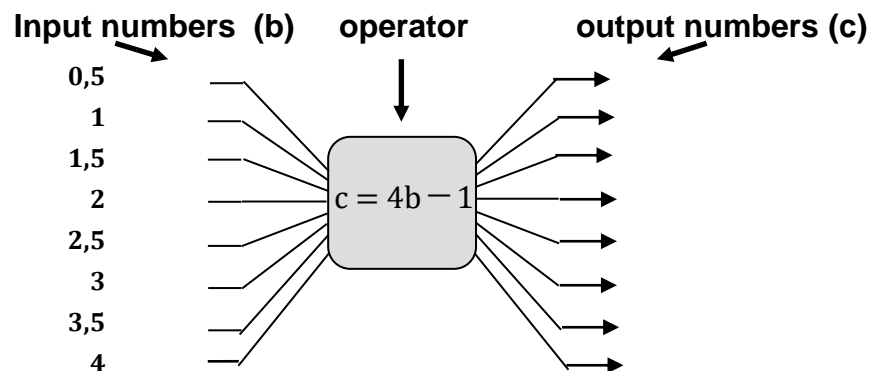
Given number (x)	0	1	2	3	4	5
Value of the number (y) $y = 3x + 0,25$						

## 2.1.4

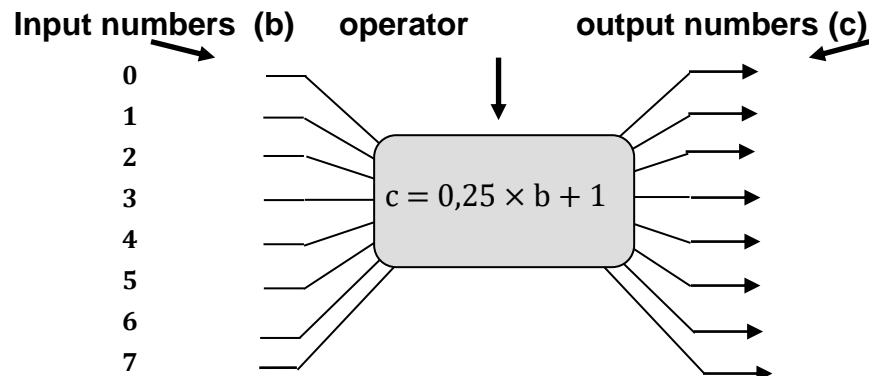
Given number (x)	9	12	15	18	21	24
Value of the number (y) $y = \frac{1}{3}x - 2\frac{1}{2}$						

2.2 Give the output values in the following flow diagrams:

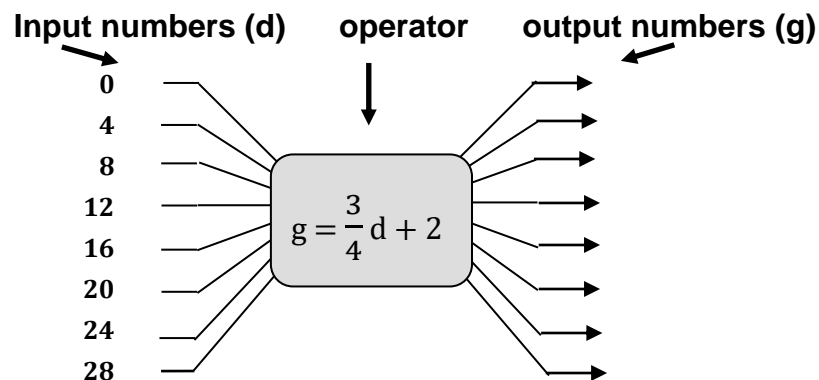
2.2.1



2.2.2



2.2.3



3. Check your work! [ 5 mins]

