Mathematics
Grade 8

TOPIC:
Functions & Relationships

INPUT AND OUTPUT VALUES

Flow Diagrams

1. Complete the flow diagram by finding the missing output values.



a) If $x = 4$, then $y =$

b) If $x = 7$, then $y =$

c) If $x = 10$, then $y =$

2. Find the missing input values for the flow diagram below.



a) If $y = 11$, then $x =$

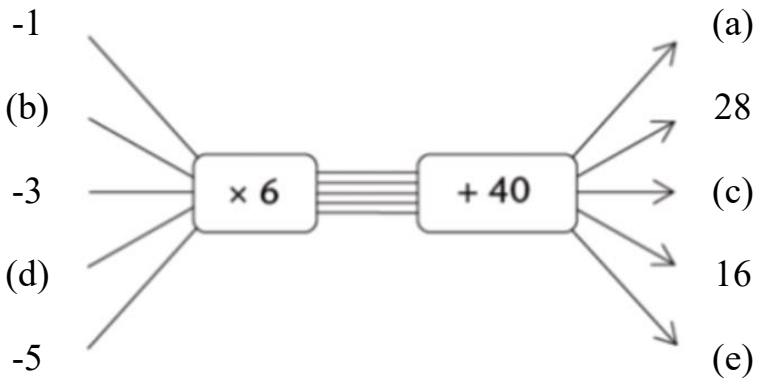
b) If $y = 1$, then $x =$

c) If $y = -3$, then $x =$

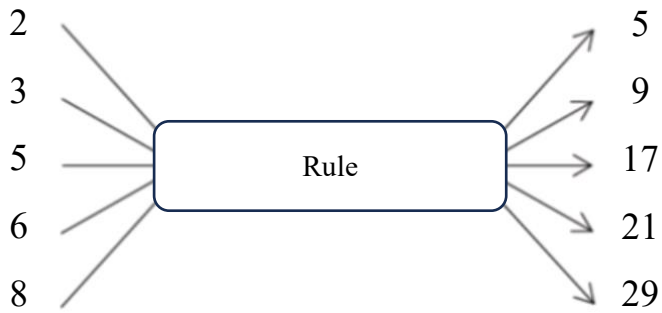
3. Determine the rule (operations) for this flow diagram.

Input (x)	**?**	**?**	**Output (y)**
2	Rule: ?	Rule: ?	9
5			18
8			27

4. Complete the following flow diagram:



5. Find the rule for calculating the output value for every given input value in the flow diagram below:



Tables and Formulae

6. Complete the table using the rule: $y = 2x - 3$

x	1	3	5	9
y				

7. Find the rule that is represented by the table below:

x	1	2	3	4	5
y	7	12	17	22	27

8. Use the formula $A = 4s + 3$ to find:

   a) The value of A when $s = 5$

   b) The value of A when $s = 12$

   c) The value of s when $A = 23$

   d) The value of s when $A = 43$

9. Solve for x in the equation: $3x + 7 = 22$

EQUIVALENT FORMS

10. Given the rule: "Multiply the input by 4, then subtract 2"

    a) Write this rule as a formula: $y =$

    b) Complete the table for this rule:

x	1	3	5
y			

    c) Draw a flow diagram for this rule.

11. These representations show the same relationship. Fill in the missing information.

x	2	4	6	8
y	13	23	33	43

    a) Formula: $y =$

    b) Give a verbal description for this rule.

    c) If $x = 15$, what is y?

12. Justify whether these two rules are equivalent.

    Rule A: $y = 2(x + 3)$

    Rule B: $y = 2x + 6$

13. A shop charges a fixed delivery fee of R25 plus R15 per item ordered.

    a) Write a verbal description of how to calculate the total cost (C) based on the number of items (n):

    b) Write a formula for the total cost: $C =$

    c) Complete the table:

Number of items (n)	1	3	5	10
Total cost (C) in Rands				

CAPS CLARRIFICATION:

Input and output values

- Determine input values, output values or rules for patterns and relationships using:
    - flow diagrams
    - tables
    - formulae
    - equations

Equivalent forms

- Determine, interpret and justify equivalence of different descriptions of the same relationship or rule presented:
    - verbally
    - in flow diagrams
    - in tables
    - by formulae
    - by equations