

Name _____

FUNCTION DIAGRAMS

Date _____



Definition of a function

1. A function is a rule that can be applied to each element of an initial set (domain) resulting in one and only one outcome number. The set of outcome numbers is called the range.
2. A function is a set of ordered pairs in which each first element is paired with one and only one second element. The set of first elements is the domain of the function. The set of second elements is the range of the function.

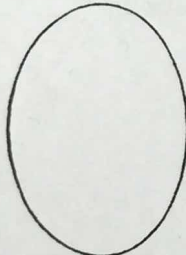
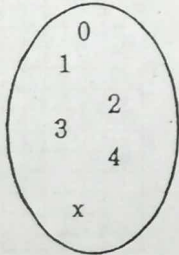
STUDENT CHALLENGES

Directions: For each problem:



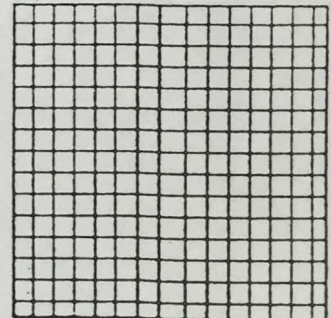
1. Complete the function diagram for the given rule.
2. Use the consonant f, g, or h to write the rule in function notation.
3. Write the paired data using ordered pairs and set notation.
4. Plot the data on the function grid.

Problem 1 Rule: multiply by 2 then add 1.

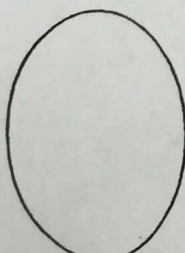
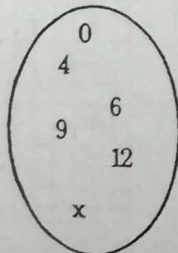


Function Notation

Set Notation

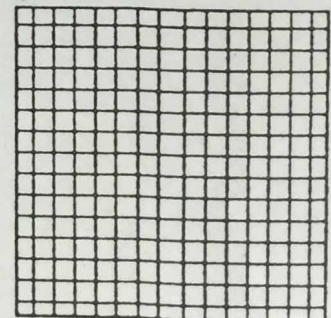


Problem 2 Rule: multiply by $\frac{1}{2}$ then add 3.

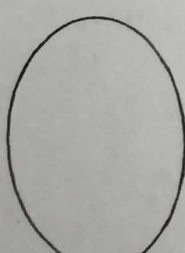
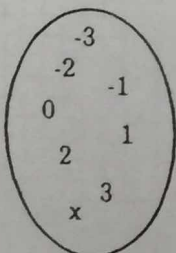


Function Notation

Set Notation

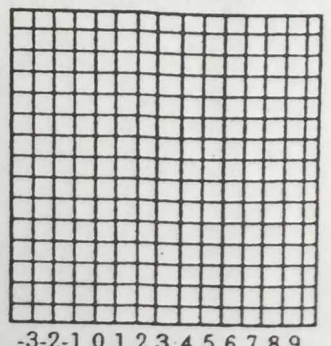


Problem 3 Rule: square each number then add 2.



Function Notation

Set Notation



Name _____

Date _____

FUNCTION DIAGRAMS

FINDING THE MISSING PIECES



Definition of a function

1. A function is a rule that can be applied to each element of an initial set (domain) resulting in one and only one outcome number. The set of outcome numbers is called the range.

2. A function is a set of ordered pairs in which each first element is paired with one and only one second element. The set of first elements is the domain of the function. The set of second elements is the range of the function.

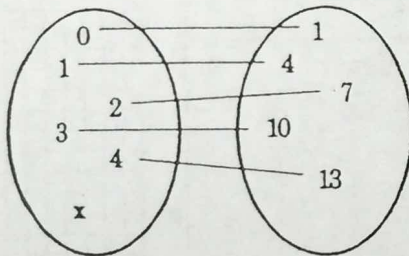
STUDENT CHALLENGES

Directions: For each problem, function clues are given. Use the clues to:

1. Discover the rule and complete the function diagram.
2. Use f , g , or h to write the rule in function notation.
3. Write the paired data using ordered pairs and set notation.
4. Plot the data on the function grid.
5. Find the inverse function, if it exists. (In function notation)

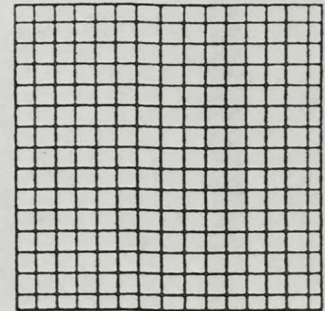


Problem 1 Rule: _____



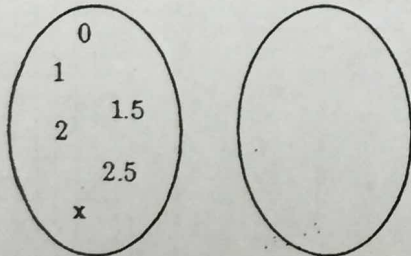
Function Notation

Set Notation



0 1 2 3 4 5 6 7 8 9 ...

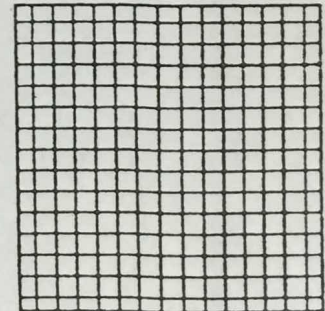
Problem 2 Rule: _____



Function Notation

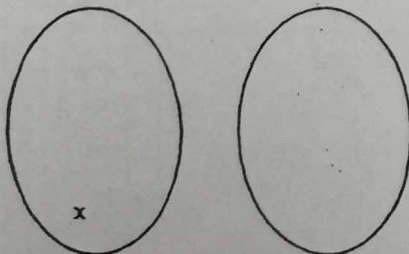
$$f(x) = x^3 + 1$$

Set Notation



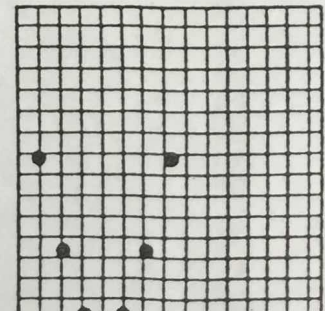
0 1 2 3 ...

Problem 3 Rule: _____



Function Notation

Set Notation



-3 -2 -1 0 1 2 3 4 5 6 7 8 9 ...