

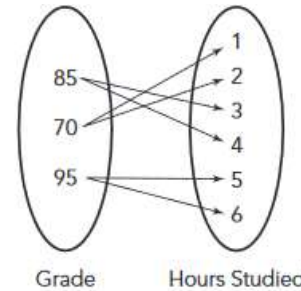
Write the term from the box that best completes each sentence.

scatter plot	output	relation	input	vertical line test
mapping	set	domain	range	function

- A(n) relation is any set of ordered pairs or the mapping between a set of inputs and a set of outputs.
- The first coordinate of an ordered pair in a relation is the input.
- The second coordinate of an ordered pair is the output.
- A(n) function maps each input to one and only one output.
- A(n) scatter plot is a graph of a collection of ordered pairs.
- The vertical line test is a visual method of determining whether a relation represented as a graph is a function by visualizing whether any vertical lines would intersect the graph of the relation at more than one point.
- A(n) mapping shows objects in two sets connected together to represent a relationship between the two sets.
- A(n) set is a collection of numbers, geometric figures, letters, or other objects that have some characteristic in common.
- The domain of a function is the set of all inputs of the function.
- The range of a function is the set of all outputs of the function.

PRACTICE

11) A history teacher asks six of her students the number of hours that they studied for a recent test. The diagram shown maps the grades that they received on the test to the number of hours that they studied.



a. Is the relation a function? Explain why or why not.

**Not a Function** → All 3 inputs have more than one output.



b. Write the set of **ordered pairs** to represent this mapping.

{ (85, 3), (85, 4), (70, 1), (70, 2), (95, 5), (95, 6) }

c. Write out the **domain** and **range** for this relation.

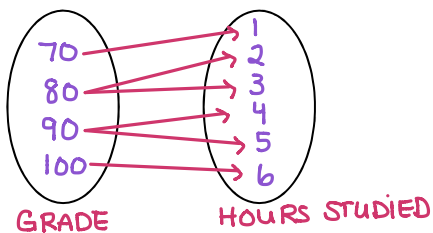
Domain: { 70, 85, 95 }

Range: { 1, 2, 3, 4, 5, 6 }

12) The science teacher created the set of ordered pairs:

{ (100, 6), (90, 5), (80, 3), (70, 1), (90, 4), (80, 2) }

These ordered pairs represent six students' grades on the midterm to hours studied. Create a mapping from the set of ordered pairs.



a. Is the relation a function? Explain why or why not.

**Not a Function.** The input 90 has 2 outputs, 4 and 5. The input 80 has 2 outputs 2 and 3.

b. List all the inputs (domain) and outputs (range) of the relation.

Input: { 70, 80, 90, 100 }

Output: { 1, 2, 3, 4, 5, 6 }

13) At the end of the year, a principal decides to create the mapping based on the information below (do not create the diagram).

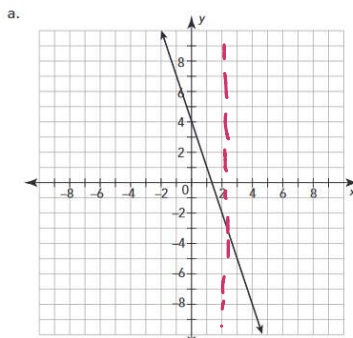
Input: The 82 total students in the history class

Output: the final grades they received for the class

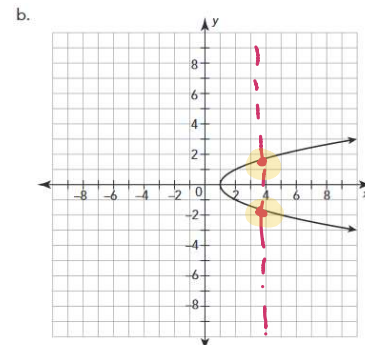
Does this mapping fit the definition of a function? Explain your reasoning.

Yes, each student only gets one final grade

14) Use the vertical line test to determine if each graph represents a function. Explain your reasoning.



**FUNCTION**  
passes vertical line test



**Not a Function**  
Does not pass vertical line test

**REVIEW**

15) Calculate the slope by using the slope formula for each table below.

x	y
2	-1
3	1.5
4	4
5	6.5

Show work: (2, -1) (4, 4)

$$m = \frac{4 - (-1)}{4 - 2} = \frac{5}{2}$$

$$m = \frac{5}{2}$$

x	y
2	8
4	2
6	-4
9	-13

Show work: (2, 8) (4, 2)

$$m = \frac{2 - 8}{4 - 2} = \frac{-6}{2} = -3$$

$$m = -3$$