Google Classroom code: 3678jw

Online Classroom: http://hhsslowe.pbworks.com/

Class Expectations

Every evening before a class, print the lesson off from the website above.
Be on time.
Get your books open right away and copy down the learning goals.
Copy down all notes and examples.
No phones while I'm teaching.

Paperwork first!

Student Information Sheet for Mr. Lowe

NAME: _____ **HOME** Phone Number: _____

Contact Name(s): _____ **(Contact)** Work Number: _____

(Parent/Guardian First and Last Names) **(Contact)** Cell Number: _____

(Who's work/cell? Mom or Dad)

E-mail address (parents/guardian): _____ [I use this to send mark summaries/updates.]

School Counsellor: (A-F=Ms.Fairhall, G-L=Mrs.Stirling, M-Re=Mrs.Kennedy, Ri-Z=Mrs.Shepherd)

(Circle name)

1. Please fill in your Semester 1 Timetable. (I MUST see your MSIP period, MSIP teacher and **ROOM NUMBERS** below)

PERIOD	A	B	C	LUNCH	D (Day 1)	E
COURSE (Name or Code)						
TEACHER						
Room #						

2. What were the most recent math courses you took? What was your mark? Who was your teacher?

Course (ex. Gr.9 Academic or Gr.10 Applied)	Mark	Teacher (and school if not HHSS)

Functions (1.1)

Math Learning Target:

" I can graph any relation presented.
I understand the difference between a function and a relation.
I can explain why a relation, presented in *any* form,
is a function or not, without reference to the vertical line test."

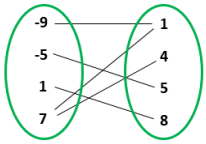
Set

A **set** is a collection of distinct objects called **elements**.

Relation

A **relation** is a relationship between sets of elements (values), typically described as *x* and *y*. Each element of one set corresponds to at least one element of another set, to create a set of **ordered pairs** (*x*, *y*).

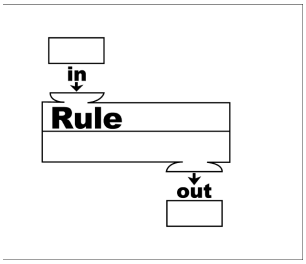
Relations may be expressed as a graph, table of values, formula, or a mapping diagram.



Example of a mapping diagram

Function
(*loosely stated*)

A **function** is a specific type of relation in which each element of the independent variable corresponds to one, *and only one*, element of the dependent variable.
For every input value, there is a unique output value.



Functions are typically written using the notation

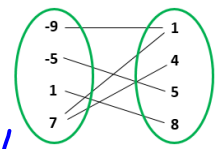
$y = f(x)$

(pronounced "*f* of *x*") where the independent variable is *x* and the dependent variable is *y*.

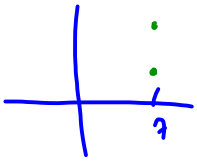
Vertical Line Test

After graphing a relation, it follows that if every vertical line intersects the graph at exactly one point, then it is a function. This is known as the **vertical line test**.

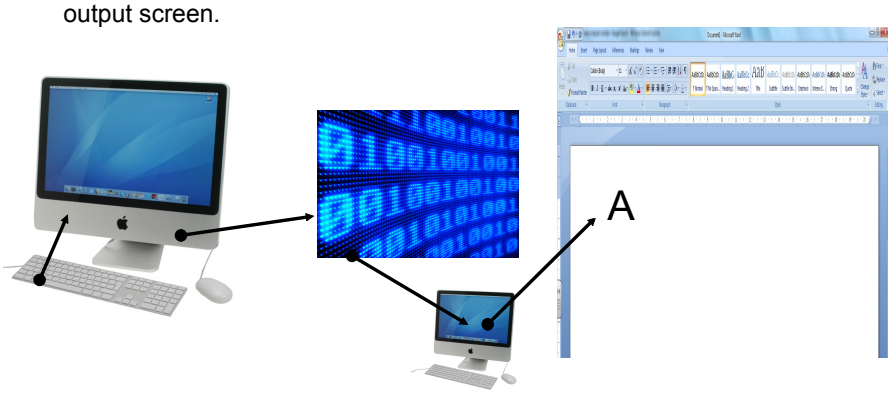
Does this relation pass the vertical line test?



No, 7 maps to two values 1 and 4.



Some functions are **composite functions,** such as the function that takes one keyboard input, and converts it into one character on the output screen.



Domain and Range

The complete set of elements of the independent variable is a relation's **domain,** whereas the complete set of elements of its dependent variable is its **range.**

$x^2 + y^2 = 4$ $y = (x+4)^2 - 1$

Example

a) Graph and

b) State the domain and range for each relation.

c) Which one(s), if any, are functions? Explain without referring to the vertical line test.

$x^2+y^2=4$

$x^2+y^2=r^2$

$\therefore r^2=4$

$\therefore r=2$

(radius = r)

$D:\{x\in\mathbb{R} \mid -2\le x\le 2\}$

$R:\{y\in\mathbb{R} \mid -2\le y\le 2\}$

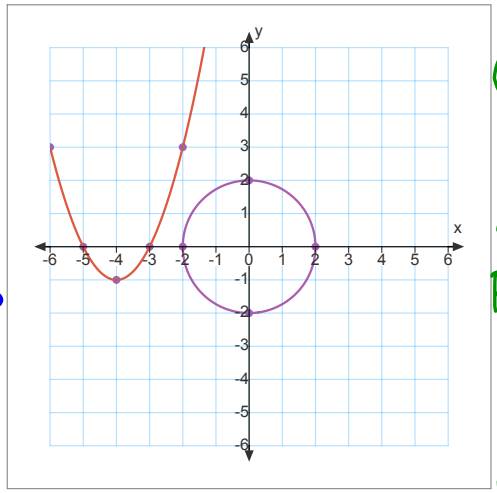
$y=(x+4)^2-1$

V(-4,-1)

a=1

$D:\{x\in\mathbb{R}\}$

$R:\{y\in\mathbb{R} \mid y\ge -1\}$



Not a function

ex x=0 → y=2, y=-2

yes a function: each x maps to only 1 y value.

NOT unique

Function

(more formally stated)

A function is a relation in which each element of its domain corresponds to a unique element in its range.

When asked if a relation is a function or not, do not refer to the vertical line test.

Return Student Info Sheet before beginning homework.

Sign and **RETURN** the cover sheet with email address PRINTED.

Page 11/12/13 # 2, 3, 4, 5, 7, 8, 9,10,11,14,15.
Do your solutions match the final answers in the back of the text **exactly,** (except where the vertical line test is in the explanation)?

Note: I always expect you to write the question, then show the steps to the answer. This is 4U !!

Attachments

billy7.wav