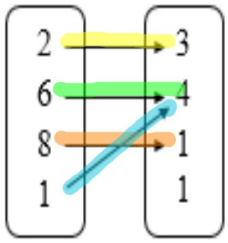
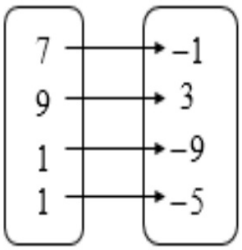
List the ordered pairs shown in the mapping diagram. Then determine whether the relation is a function.

1. Input Output



Inputs are going to one output (Function)

2. Input Output



Inputs are going to one output Function

Find the value of y for the given value of x.

3. $y = \frac{1}{2}x;\ x = -18$

$y = \frac{1}{2}(-18)$

$y = -9$

4. $y = -4x + 6;\ x = 1$

$y = -4x + 6$

$y = -4(1) + 6$

$y = -4 + 6$

$y = 2$

5. Write an equation that describes the function shown by the table.

Input, x	1	2	3	4
Output, y	−5	−10	−15	−20

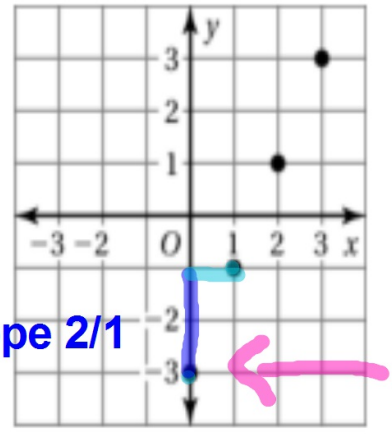
+1 +1 +1

-5 -5 -5

Rate of change = $\frac{y}{x}$ $\frac{-5}{1}$

$y = -5x + 0$

$y = -5x$



Slope 2/1

y - int. = -3

equation= y = 2x - 3

7.

		+2	+2	+2
x	−2	0	2	4
y	5	4	3	2
		-1	-1	-1

The rate of change between y and x is

-1/2

Y - int = 4. (because x = 0 the line will cross at 4 on the y axis)

Equation= y = -1/2x + 4

8. The table shows the amount of gasoline g (in gallons) left in your tank after you travel m miles.

   a. Write a linear function that relates the amount of gasoline to the traveling distance.

   b. How many gallons of gasoline are left after you drive 120 miles?

	x	y	
	Miles, m	Gallons, g	
	0	20	
+20	20	19	-1
+20	40	18	-1
+20	60	17	-1

Rate of change= -1/20
y- int = 20

a.) Equation = y = -1/20x + 20

b.) -1/20 (120) + 20
= 14 gallons

Jordan and Alyssa find out they are reading the same book. Although they will be starting on different page numbers, they decide to record their progress to determine who is the faster reader. Using the results below, determine who is reading at a faster rate. Explain your reasoning.

Jordan's Reading Rate

Reading Time (in hours)	Page Number
2	215
3	260
5	350

+1 + 45

rate of change (Slope)
45/1

Alyssa's Reading Rate

Page Number

4 hrs

+200

Reading Time (in hours)

rate of change is 200/4
50/1

Alyssa is going to be reading at a faster rate, because she is reading 50 pages per 1 hour vs. 45 pages per 1 hour.