

Math 8

Relations & Functions:

A point is represented as (x, y)
alphabetically

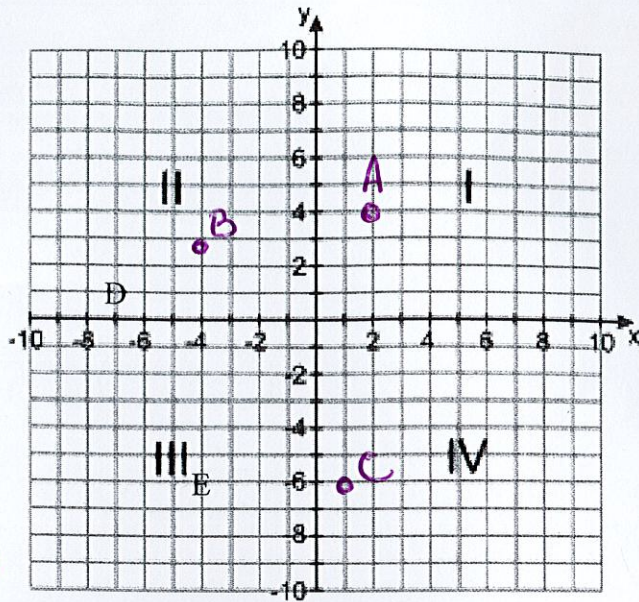
Plot Point A $(2, 4)$

Plot Point B $(-4, 3)$

Plot Point C $(1, -6)$

What are the coordinates of D? $(-7, 1)$

What are the coordinates of E? $(-4, -6)$



We can write the points as a set of ordered pairs. This is called a relation.

$\{(2, 4), (-4, 3), (1, -6), (-7, 1), (-4, -6)\}$

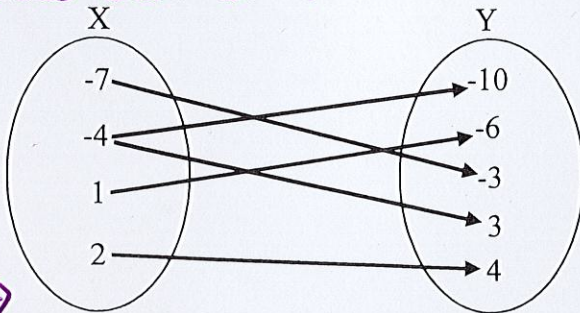
Domain: (x-values) $\{2, -4, 1, -7\}$

Range: (y-values) $\{4, 3, -6, 1\}$

Inverse: $\{(4, 2), (3, -4), (-6, 1), (1, -7), (-6, -4)\}$

Mapping: *New Set of Points*

Table Form:



x	y
-7	-3
-4	-10
2	4
1	-6
-4	3

This One.

Function: special type of relation in which every x value is paired with exactly one y value.

Is our example a function? Why or why not? No -4 is repeated.

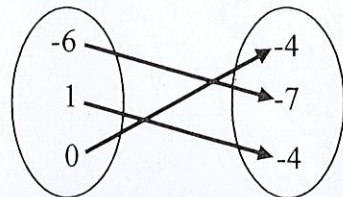
Examples:

1. $\{(1, 2), (2, 3), (-3, 1), (4, 2)\}$

2.

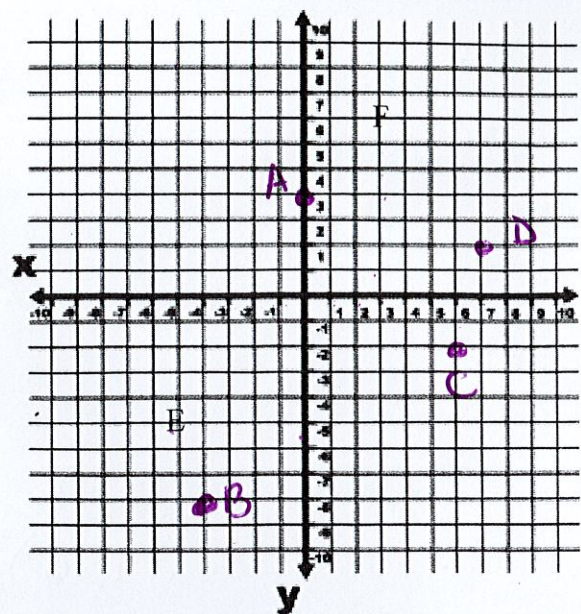
x	y
3	-1
4	-2
0	0
2	2

3.



Classwork:

1. Plot Point A (0, 4)
2. Plot Point B (-4, -8)
3. Plot Point C (6, -2)
4. Plot Point D (7, 2)



5. What are the coordinates of E? (-5, -5)
What Quadrant is it in? III
6. What are the coordinates of F? (3, 7)
What Quadrant is it in? I

7. { (2, -3), (-3, 4), (0, 5), (1, 1), (-4, 3) }

What is the domain? 2, -3, 0, 1, -4

What is the range? -3, 4, 5, 1, 3

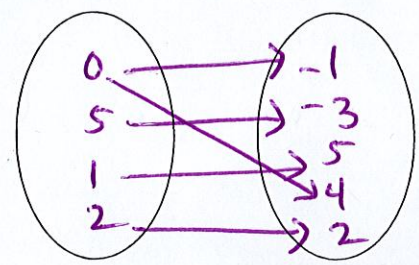
Function? yes

What is the inverse? (-3, 2) (4, -3) (5, 0) (1, 1) (3, -4)

8. Table:

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

Make a mapping:



What is the domain? 0, 5, 1, 2

What is the range? -1, -3, 5, 4, 2

Function? No

Review: Solve each of the following equations. Show all of your work.

9. $2x - 1 = 17$
 $+1 \quad +1$
 $2x = 18$
 $x = 9$

10. $-5x + 7 = -8$
 $-7 \quad -7$
 $-5x = -15$
 $x = 3$

11. $\frac{x}{2} - 4 = 12$
 $+4 \quad +4$
 $\frac{x}{2} = 16$
 $x = 32$

12. $3x + 7 < -11$
 $-7 \quad -7$
 $3x < -18$
 $x < -6$

13. $\frac{x}{-3} + 14 > 20$
 $-14 \quad -14$
 $\frac{x}{-3} > 6$
 $x < -18$

14. $3x + 5 = 2x - 9$
 $-2x \quad -2x$
 $-2x - 5 = -2x - 9$
 $x = -14$