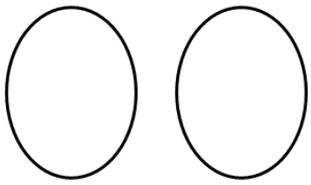
Worksheet #1 AA1 Name_____ Per

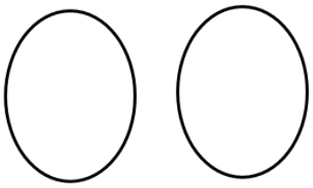
Functions vs Relations

1) Depict the relations below using arrow (mapping) diagrams:

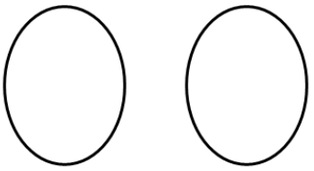
a) {(2,3), (2,5), (3,7), (4,7), }



b) {(1,3), (2,4), (4,5), (5,4)}



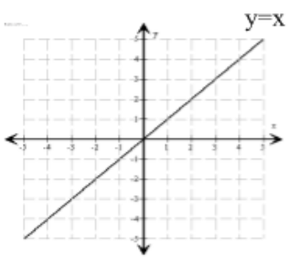
c) {(1,4), (2, 0), (4,7), (7,2)}



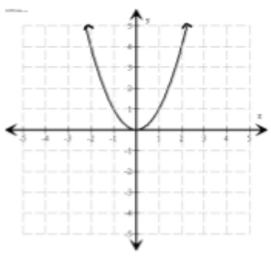
2) For each relation in #1 (a-c) above, is the relation a function? Explain.

3) Label the graphs below as "function" or "Not a function". Explain

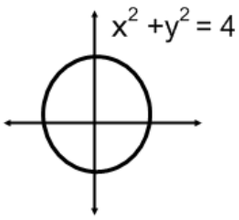
Example1:

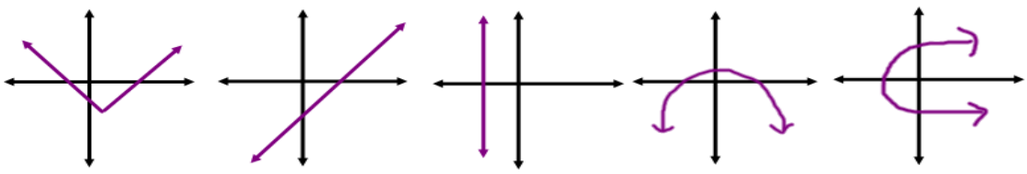


Example 2:



Example 3:





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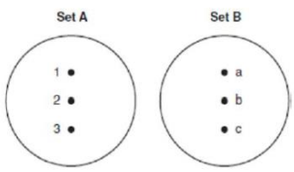
4. In the following questions, state whether or not each indicated relation is a function

A = {(1,3), (3,8), (6,5)} **B = {(2,5), (3,2), (3,7)}** **C = {(2,3), (3,7), (4,3), (-1,4)}**

D = {(0,4), (-2,1), (3,0), (3,5)} **E= {(2,5), (2,2), (-3,2), (9,1), (-1,5)}**

4 a). On the accompanying diagram, draw a mapping of a relation from set *A* to set *B* **that is not a function**. Explain why the relationship you drew is not a function.



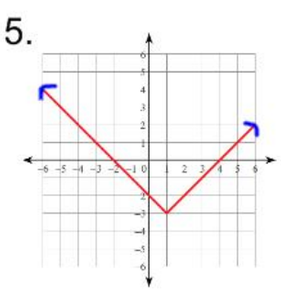
For the following relations in #5 and #6,

a. Determine the **Domain** and the **Range**

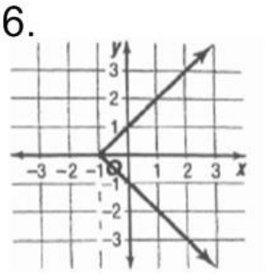
#5 Domain
Range

#6 Domain
Range

5.



6.



b. Is any of the relations a **function** ?

Function Notation

1. Evaluate the following expressions given the functions below:

$g(x) = -3x + 1$ **$f(x) = x^2 + 7$** $h(x) = \frac{12}{x}$ $j(x) = 2x + 9$

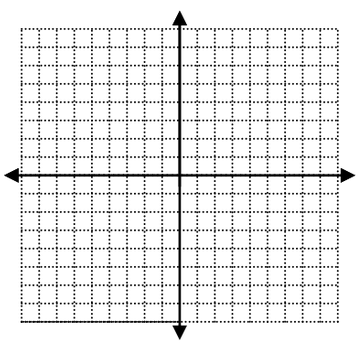
a. $g(10)$ = **b.** $f(3)$ = **c.** $h(-2)$ =

d. $j(7)$ = **e.** $h(a)$ **f.** $g(b+c)$

h. Find x if $g(x) = 16$ **i.** Find x if $h(x) = -2$ **j.** Find x if $f(x) = 23$

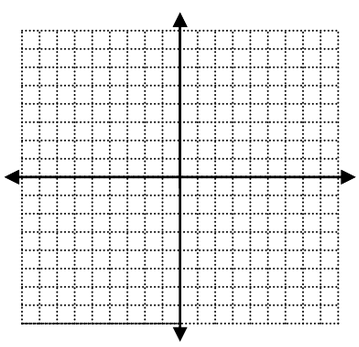
2. Given $f(x) = 3 - 4x$. Fill in the table and then sketch a graph.

x	*f(x)*
-6	
-3	
0	
1	
	-5



3. Given $f(x) = \sqrt{x+1}$. Fill in the table and then sketch a graph.

x	*f(x)*
3	
0	
-10	
2	
	6



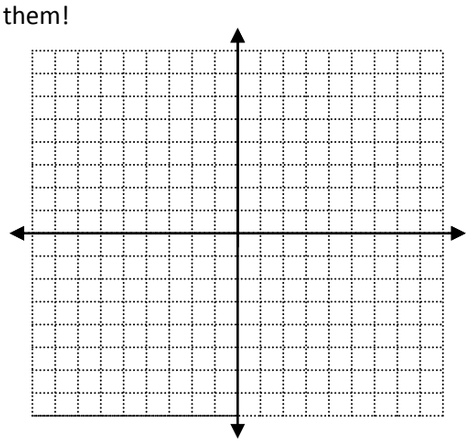
4. Translate the following statements into coordinate points, then plot them!

a. $f(-1) = 1$

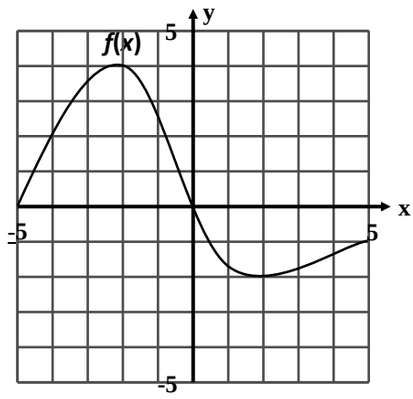
b. $f(2) = 7$

c. $f(1) = -1$

d. $f(3) = 0$



5. Given this graph of the function f(x):Find:



a. $f(-4)$ =

b. $f(0)$ =

c. $f(3)$ =

d. $f(-5)$ =

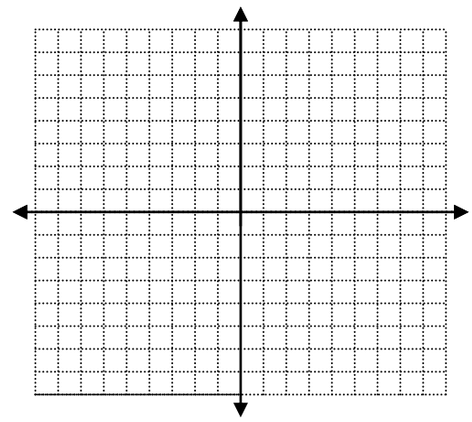
e. x when $f(x) = 2$

f. x when $f(x) = 0$

6. Find an equation of a linear function given $h(1) = 6$ and $h(4) = -3$. (NOTE: Same as write the equation of the line given two points!)

7. Swine flu is attacking Porkopolis. The function below determines how many people have swine where t = time in days and S = the number of people in thousands.

$$S(t) = 9t - 4$$



a. Find $S(4)$.

b. What does $S(4)$ mean?

c. Find t when $S(t) = 23$.

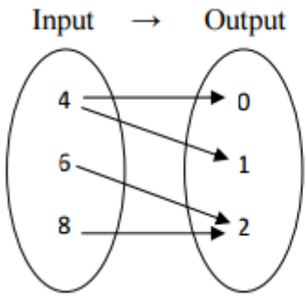
d. What does $S(t) = 23$ mean?

e. Graph the function.

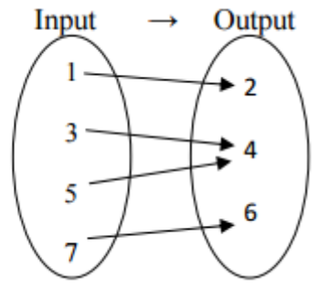
Domain and Range

1. **For Problems 1, 2 and 3:** Is the relation a function? If so, state the domain and range.

a)



b)



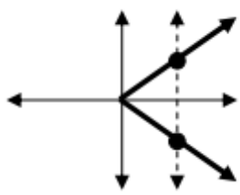
2. a.

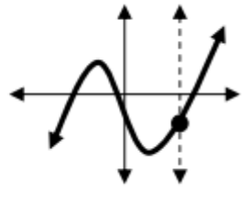
Input	Output
3	0
6	4
9	0
12	−4

b.

Input	Output
2	2
8	6
2	1
10	-6

3.



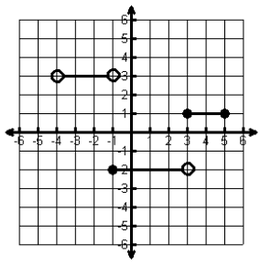


4. State the domain and range for each graph and then tell if the graph is a function (write yes or no).

1) Domain_____

Range_____

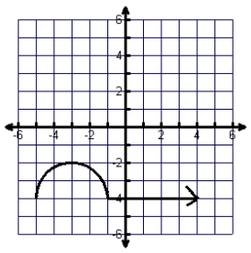
Function?_____



2) Domain_____

Range_____

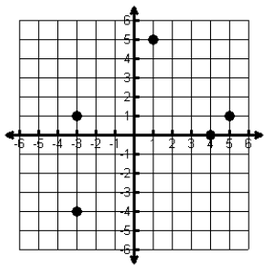
Function?_____



3) Domain_____

Range_____

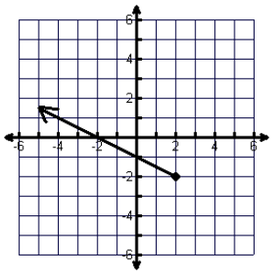
Function?_____



4) Domain_____

Range_____

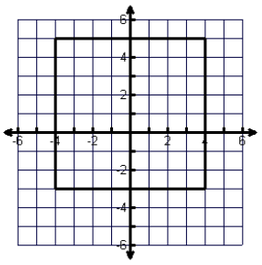
Function?_____



5) Domain_____

Range_____

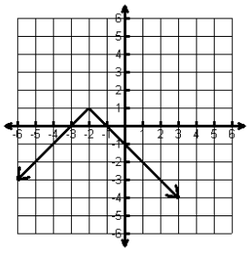
Function?_____



6) Domain_____

Range_____

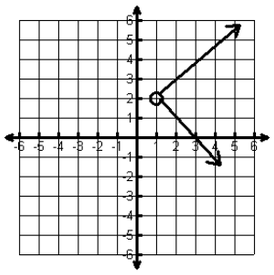
Function?_____



7) Domain_____

Range_____

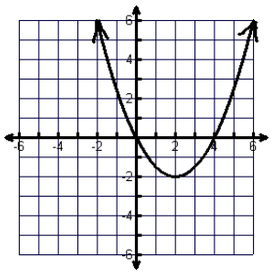
Function?_____



8) Domain_____

Range_____

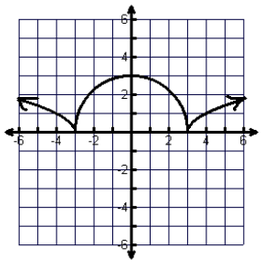
Function?_____



9) Domain_____

Range_____

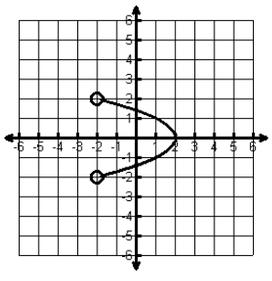
Function?_____



10) Domain_____

Range_____

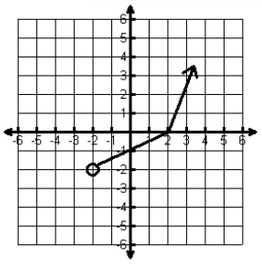
Function?_____



11) Domain_____

Range_____

Function?_____



12) Domain_____

Range_____

Function?_____