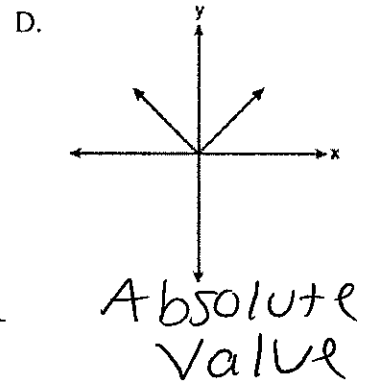
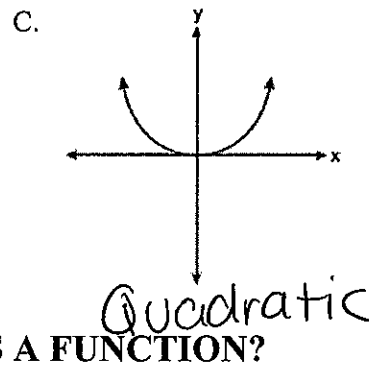
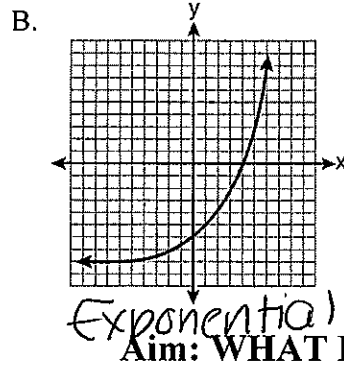
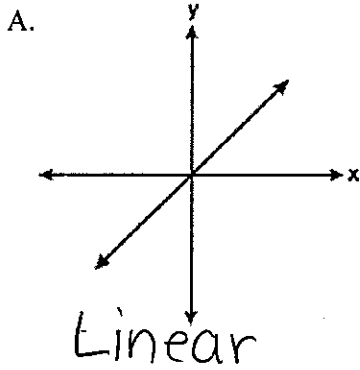


Do Now: Given the diagrams below identify each types of function



**Relation:** is a set of ordered pairs.

- Ex: a)  $\{(1,2), (-3,5), (8,4)\}$   
 b)  $\{(\text{Feb}, 2), (\text{Jan}, 18)\}$

**Domain:** is the set of all of the first elements (x-values) - ind. variable  
 -input

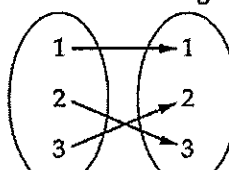
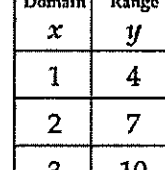
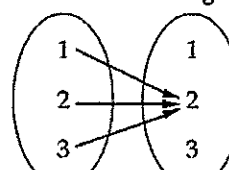
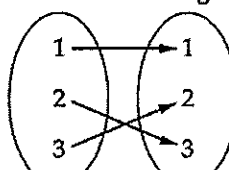
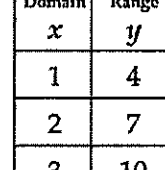
- Ex: a)  $\{1, -3, 8\}$

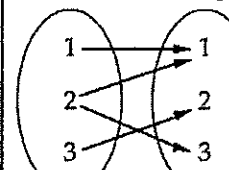
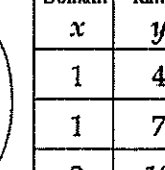
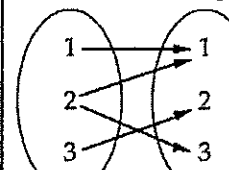
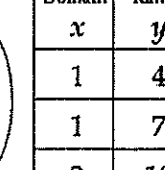
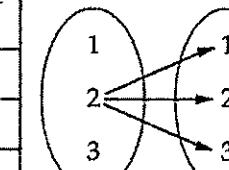
- b)  $\{\text{Feb}, \text{Jan}\}$

**Range:** is the set of all of the second elements (y-values) - dep. variable  
 -output

- Ex: a)  $\{2, 5, 4\}$

- b)  $\{2, 18\}$

Relations That Are Functions													
Domain	Range	Domain	Range	Domain	Range								
			<table border="1"><tr><td>x</td><td>y</td></tr><tr><td>1</td><td>4</td></tr><tr><td>2</td><td>7</td></tr><tr><td>3</td><td>10</td></tr></table>	x	y	1	4	2	7	3	10		
x	y												
1	4												
2	7												
3	10												

Relations That Are Not Functions													
Domain	Range	Domain	Range	Domain	Range								
		<table border="1"><tr><td>x</td><td>y</td></tr><tr><td>1</td><td>4</td></tr><tr><td>1</td><td>7</td></tr><tr><td>2</td><td>10</td></tr></table>	x	y	1	4	1	7	2	10			
x	y												
1	4												
1	7												
2	10												

**Function:** A relation in which no two ordered pairs have the same 1<sup>st</sup> element.

- The x-values do not repeat
- It passes the "V.L.T."

Notation:  
 $f(x) \rightarrow$  "f of x"  
 $\rightarrow$  just means v!

1. State if the ordered points represent a function and justify your answer.

a)  $\{(1,2) (3,4) (5,6) (7,8) (9,10)\}$

Yes, x-values are unique

b)  $\{(5,7) (6,3) (-8,1) (-4,2) (-8,-4)\}$

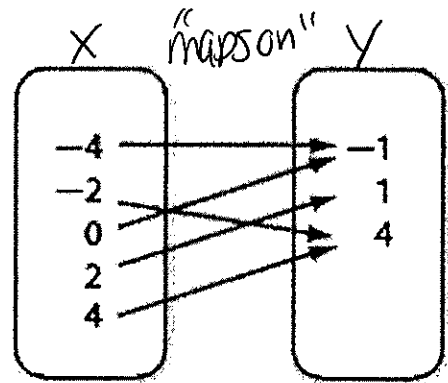
No, x-value repeats

2. Mapping - "Arrow Diagram"

a) Domain:  $\{-4, -2, 0, 2, 4\}$

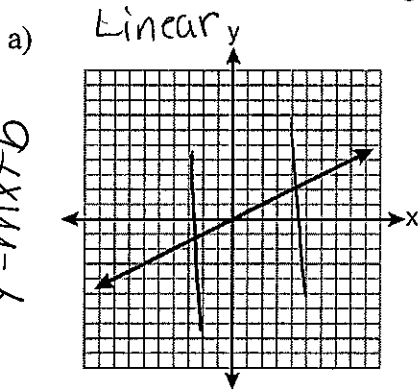
b) Range:  $\{-1, 4, 1\}$

c) Function? Yes

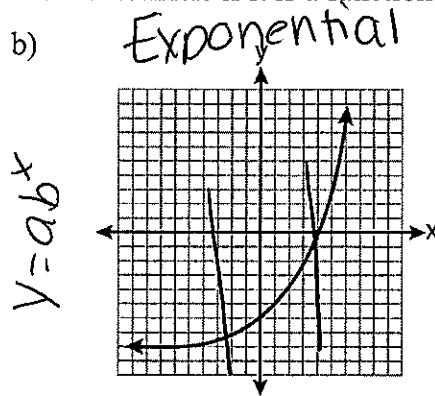


**Vertical Line Test:** if the vertical line touches the graph at only one point, the graph is a function.

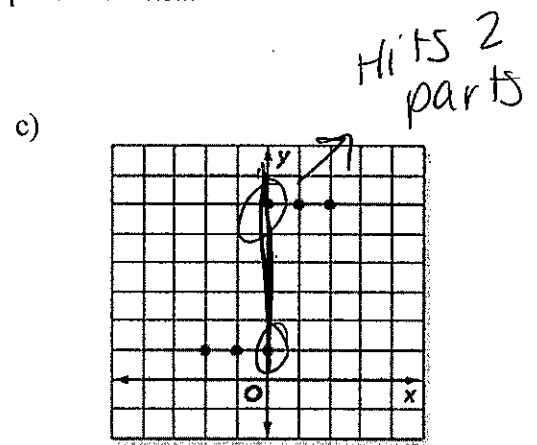
3. Directions-For each of the graphs below determine if it is a function.



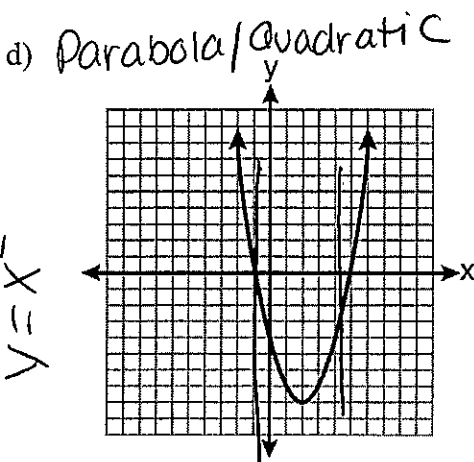
Yes



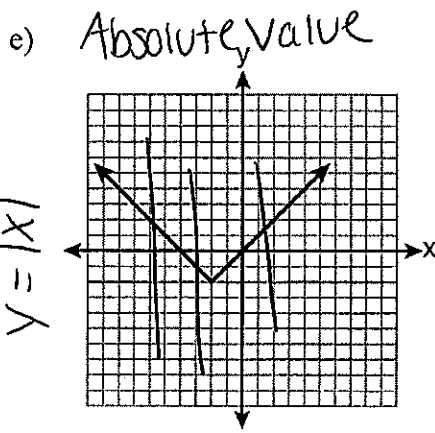
Yes



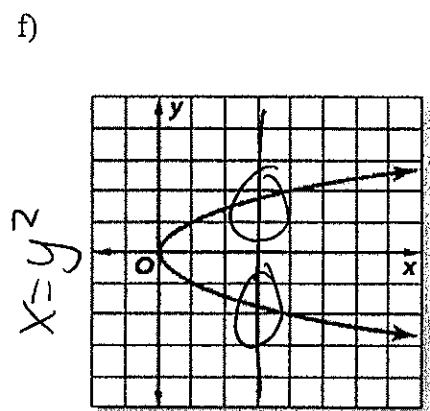
No



Yes



Yes



No

4. Which representations are functions?

1) I and II

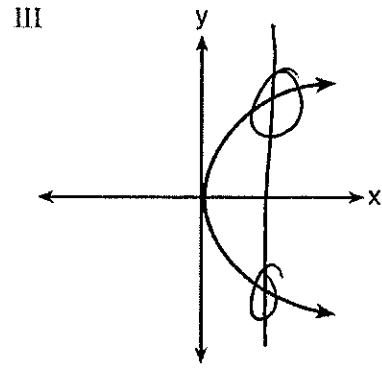
2) II and IV

3) III, only

4) IV, only

I

x	y
2	6
3	-12
4	7
5	5
2	-6



II  $\{(1,1), (2,1), (3,2), (4,3), (5,5), (6,8), (7,13)\}$

IV  $y = 2x + 1$

5. If included in the table, which ordered pair,  $(-4,1)$  or  $(1,-4)$ , would result in a relation that is no longer a function? Explain your answer.

$(-4,1)$  because the x-values would repeat.

x	f(x)
-4	2
-1	-4
0	-2
3	16

6. Which equation does *not* represent a function?

(1)  $x = \pi$

(2)  $y = 4$

(3)  $y = |x|$

(4)  $y = x^2 + 5x$

↑  
vertical  
line

7. Which relation is *not* a function?

(1)  $\{(1,5), (2,6), (3,6), (4,7)\}$

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

(2)  $\{(-1,6), (1,3), (2,5), (1,7)\}$

(4)  $\{(-1,2), (0,5), (5,0), (2,-1)\}$

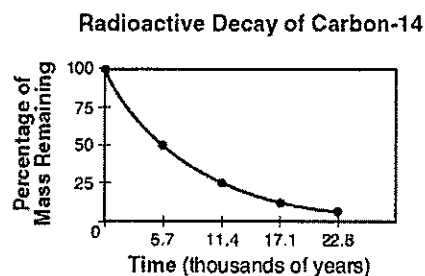
8. Which type of function could be used to model the data shown in the accompanying graph?

(1) exponential

(3) trigonometric

(2) quadratic

(4) linear



9. Which table represents a function?

1) 

x	2	4	2	4
f(x)	3	5	7	9

2) 

x	0	-1	0	1
f(x)	0	1	-1	0

3) 

x	3	5	7	9
f(x)	2	4	2	4

4) 

x	0	1	-1	0
f(x)	0	-1	0	1

10. Which table of values represents a linear relationship?

1) 

x	f(x)
-1	-3
0	-2
1	1
2	6
3	13

2) 

x	f(x)
-1	$\frac{1}{2}$
0	1
1	2
2	4
3	8

3) 

x	f(x)
-1	-3
0	-1
1	1
2	3
3	5

 $+2$   
 $+2$   
 $+2$   
 $+2$

4) 

x	f(x)
-1	-1
0	0
1	1
2	8
3	27