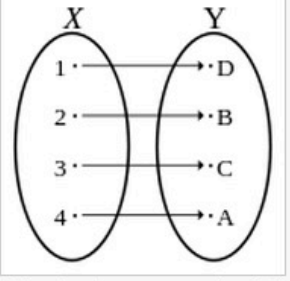
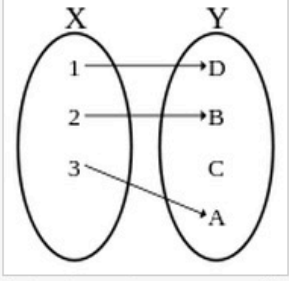
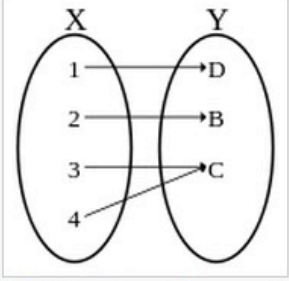
HW 1.2.3: One-to-One, Even, Odd



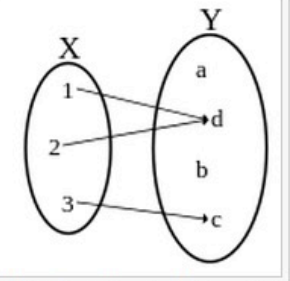
Injective (one-to-one) and surjective (onto), also bijective



Injective and non-surjective



Non-injective and surjective



Non-injective and non-surjective

1. Select all of the following tables, which represent y as a function of x **and** are one-to-one.

a.

x	2	5	9
y	6	13	22

b.

x	2	2	9
y	6	13	22

c.

x	2	5	9
y	6	13	13

2. Select all of the following tables, which represent y as a function of x **and** are one-to-one.

a.

x	1	4	7
y	3	13	13

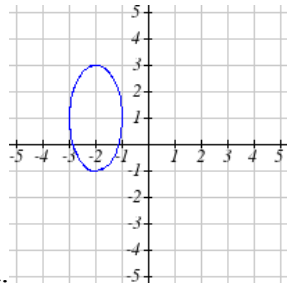
b.

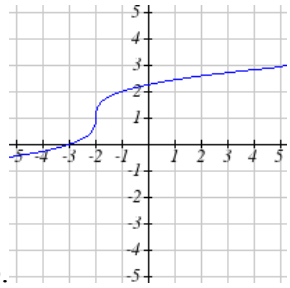
x	1	4	7
y	3	13	17

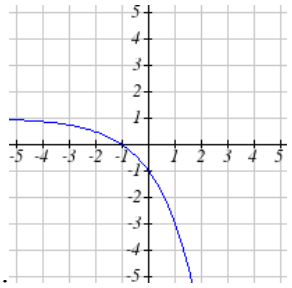
c.

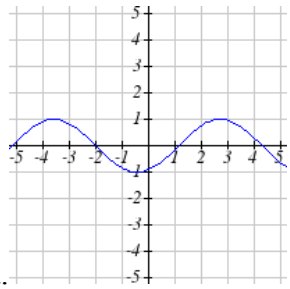
x	1	4	4
y	3	13	17

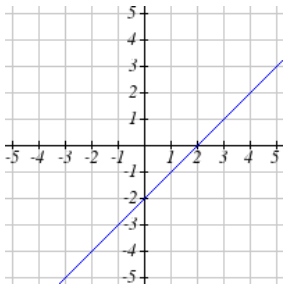
3. Select all of the following graphs, which are **one-to-one functions**.

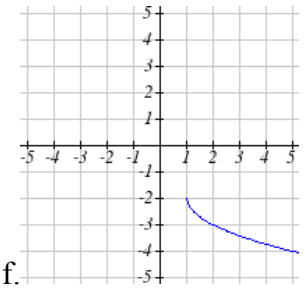
a. 

b. 

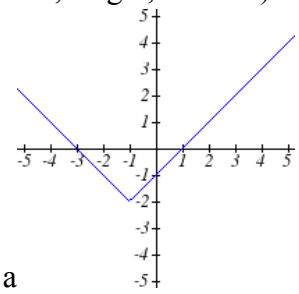
c. 

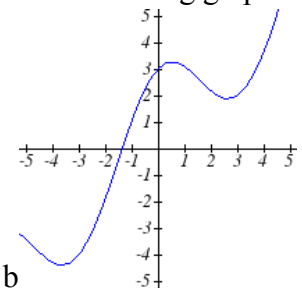
d. 

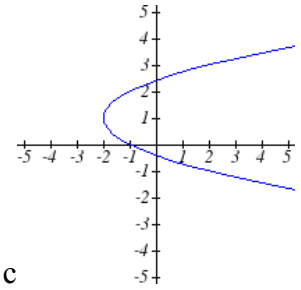
e. 

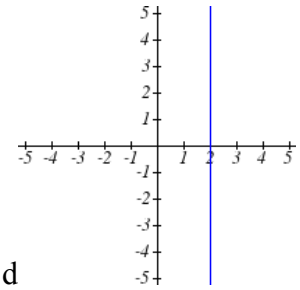
f. 

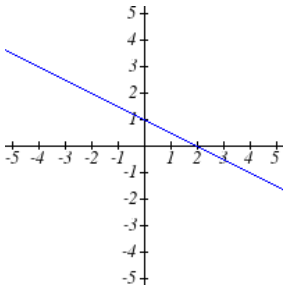
4. State whether the following graphs are even, odd, or neither. Determine their symmetry (x-axis, y-axis, origin, or none). Select all of the following graphs which are **one-to-one functions**.

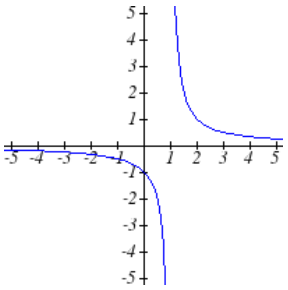
a 

b 

c 

d 

e 

f 

5. For each equation below, determine if the function is Odd, Even, or Neither.

a. $f(x)=2x^4$

b. $g(x)=3\sqrt{x}$

c. $h(x)=\frac{2}{x}+2x$

6. For each equation below, determine if the function is Odd, Even, or Neither.

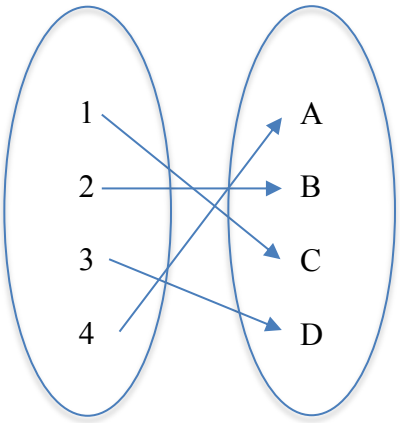
a. $f(x)=(x+1)^2$

b. $g(x)=3\,x^6$

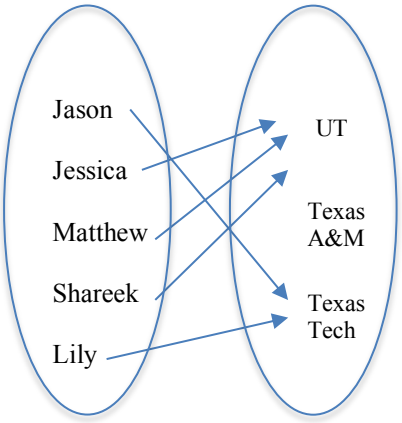
c. $h(x)=2x-2x^3$

7. For the following mappings, determine if the functions are surjective, injective, bijective or neither.

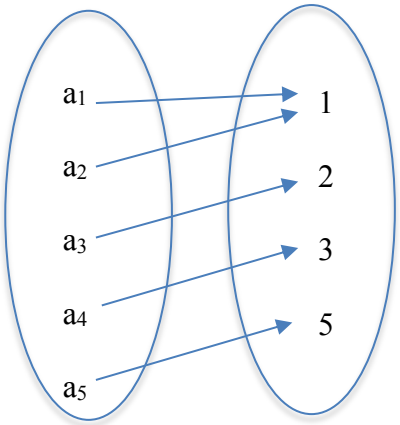
a.



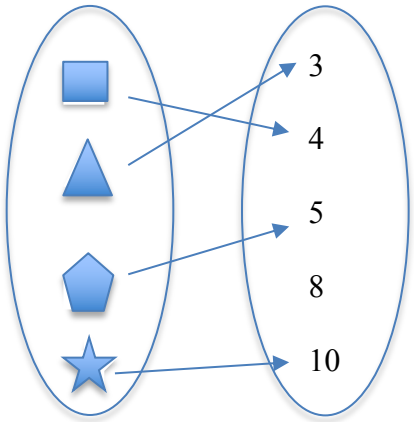
b.



c.



d.



For the following exercise, you may assume the codomain is all real numbers.

Function	Even, Odd, or Neither	Surjective, Injective, Bijective
Constant Function $f(x)=c$		
Identity Function $f(x)=x$		
Quadratic Function $f(x)=x^2$		
Cubic Function $f(x)=x^3$		
Reciprocal $f(x)=\frac{1}{x}$		
Reciprocal squared $f(x)=\frac{1}{x^2}$		
Cube Root $f(x)=\sqrt[3]{x}$		
Square Root $f(x)=\sqrt{x}$		
Absolute Value $f(x)=\lvert x\rvert$		