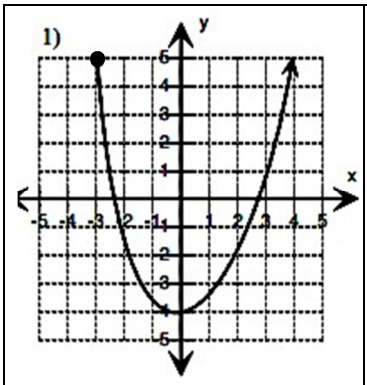
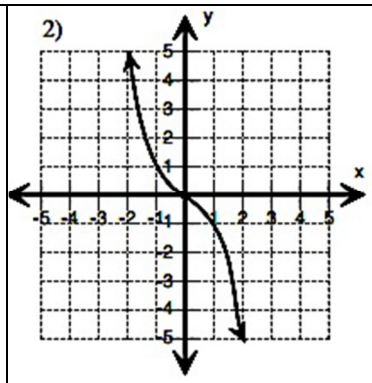
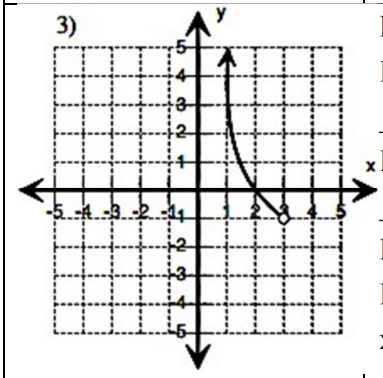
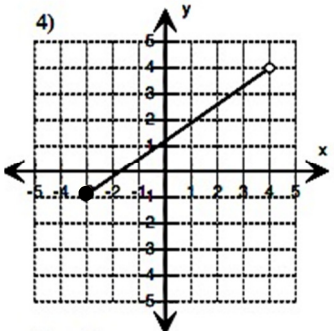
4.2H Features of Functions

Name _____ Per:_____

SHOW YOUR WORK AND WORK IN PENCIL.

For each graph, determine if the relation represents a function. State the key features of each graph.

<table>
<tr>
<td> 
1)</td>
<td>Function? YES/NO
Increasing on interval:
_____
Decreasing on interval:
_____
Domain: _____
Range: _____
x-intercept: _____
y-intercept: _____
$f(-3) =$ _____</td>
<td> 
2)</td>
<td>Function? YES/NO
Increasing on interval:
_____
Decreasing on interval:
_____
Domain: _____
Range: _____
x-intercept: _____
y-intercept: _____
$f(1) =$ _____</td>
</tr>
<tr>
<td> 
3)</td>
<td>Function? YES/NO
Increasing on interval:
_____
Decreasing on interval:
_____
Domain: _____
Range: _____
x-intercept: _____
y-intercept: _____</td>
<td> 
4)</td>
<td>Function? YES/NO
Increasing on interval:
_____
Decreasing on interval:
_____
Domain: _____
Range: _____
x-intercept: _____
y-intercept: _____</td>
</tr>
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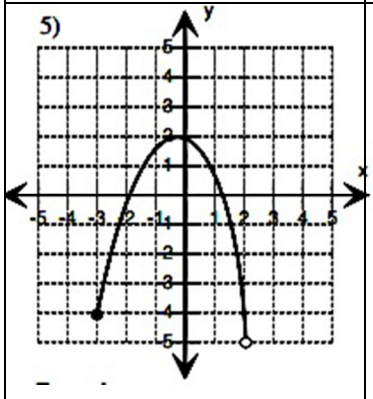
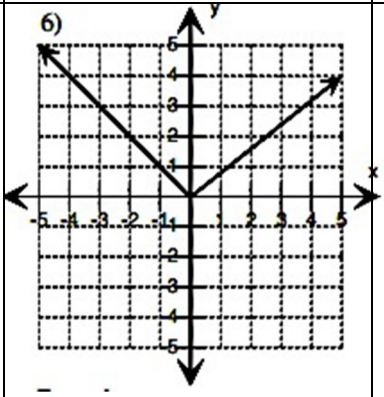
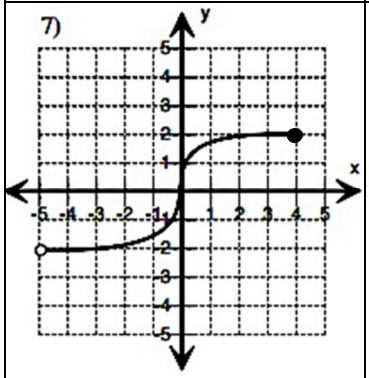
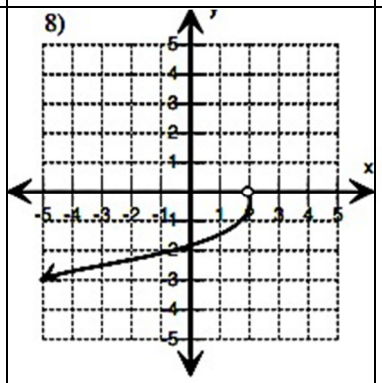
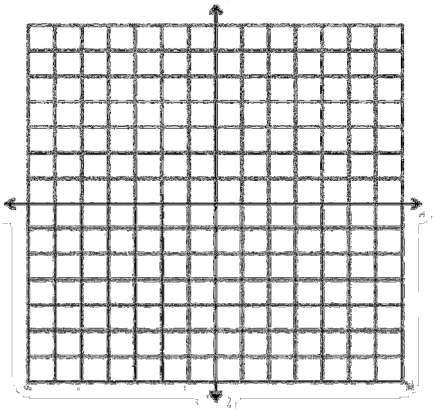
<td> 
5)</td>
<td>Function? YES/NO
Increasing on interval:
_____
Decreasing on interval:
_____
Domain: _____
Range: _____
x-intercept: _____
y-intercept: _____
$f(-3) =$ _____</td>
<td> 
6)</td>
<td>Function? YES/NO
Increasing on interval:
_____
Decreasing on interval:
_____
Domain: _____
Range: _____
x-intercept: _____
y-intercept: _____
$f(5) =$ _____</td>
</tr>
<tr>
<td> 
7)</td>
<td>Function? YES/NO
Increasing on interval:
_____
Decreasing on interval:
_____
Domain: _____
Range: _____
x-intercept: _____
y-intercept: _____</td>
<td> 
8)</td>
<td>Function? YES/NO
Increasing on interval:
_____
Decreasing on interval:
_____
Domain: _____
Range: _____
x-intercept: _____
y-intercept: _____</td>
</tr>
</table>

9. The following equation represents a *continuous function*, $h(x) = x^2 + 2$.

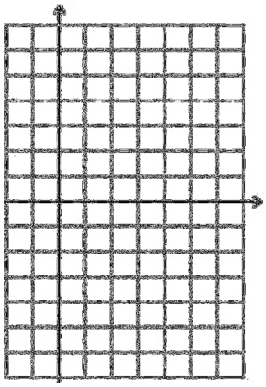
X	Y
-2	
-1	
0	
1	
2	

a. Make a table of the function
b. Graph the function.
c. Determine the domain _____
d. Determine the range_____
e. List the x-intercept(s): _____
f. List the y- intercept(s):_____
g. Identify the minimum value. _____
How do you know?



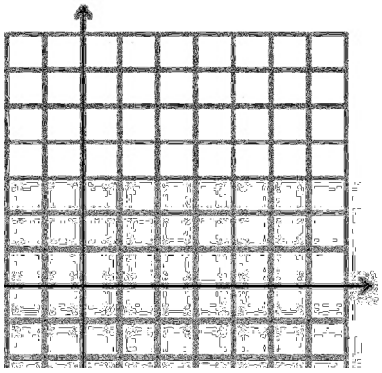
For each equation, sketch a graph and describe its features.

10. $f(x) = -2x + 4$, *when* $x \geq 0$



Continuous/Discrete?
Increasing: _____
Decreasing: _____
Domain: _____
Range: _____
x-intercept: _____
y-intercept: _____

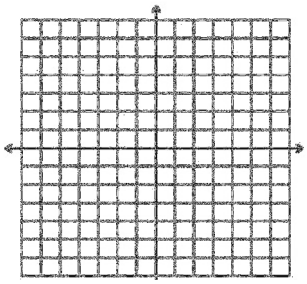
11. $g(x) = 2^x$



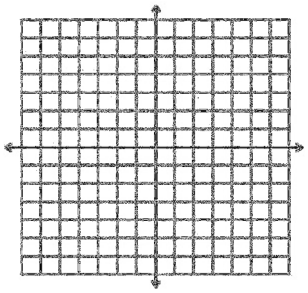
Continuous/Discrete?
Increasing: _____
Decreasing: _____
Domain: _____
Range: _____
x-intercept: _____
y-intercept: _____

Graph each system of linear equations to find where $f(x) = g(x)$.

12. $f(x) = -5x - 2$
$g(x) = -2x + 1$

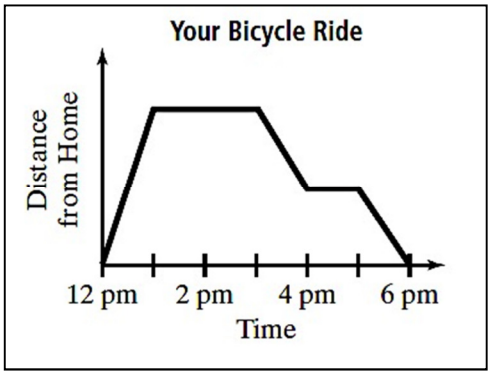


13. $f(x) = \frac{2}{3}x + 4$
$g(x) = -\frac{1}{3}x + 1$



14. Find where $f(x) = g(x)$ algebraically.

15. Give the following information based on the graph below.



a. What do the flat parts of the graph represent? _____
b. Describe the ride from 3 pm to 4 pm._____
c. When are you farthest from home?_____
d. When are you going the fastest?_____
e. List an interval where the distance is increasing. _____
f. List an interval where the distance is decreasing._____
g. List an interval where the distance is neither increasing OR decreasing _____