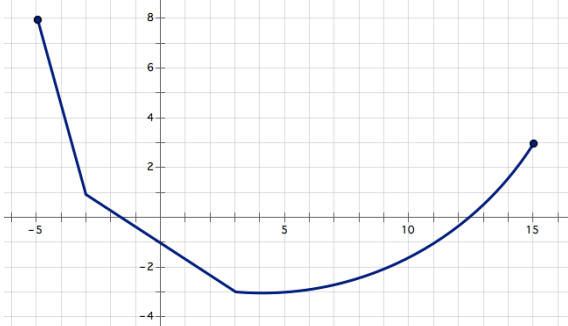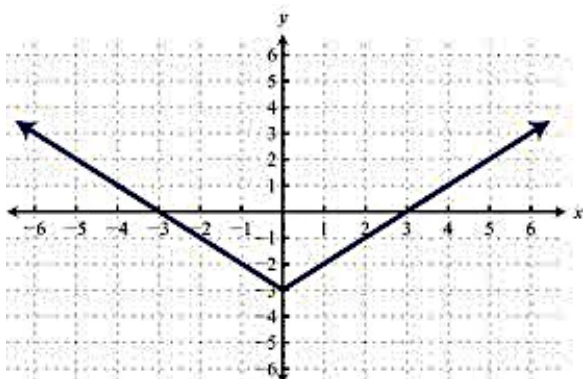**Name:**_____ **Period:**_____

Mod 3 Review

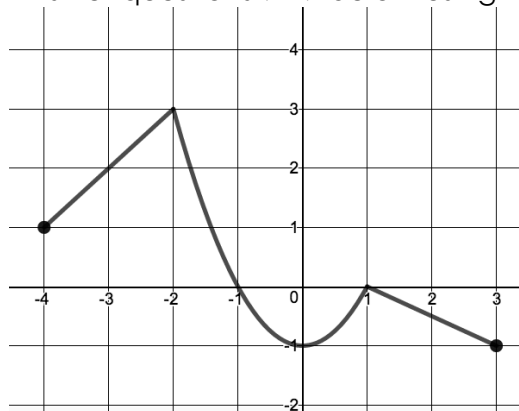List Key Features of the following functions.

1.

Min:
Max:
Increasing:
Decreasing:
Domain:
Range:
x-intercept(s):
y-intercept(s):

2.

Min:
Max:
Increasing:
Decreasing:
Domain:
Range:
x-intercept(s):
y-intercept(s):

Answer questions 9-17 below using the graph f(x) shown.

3. What is the domain of the graph?

4. Find the following values:
        a. f(-3)   b. f(0)
        c. f(1)   d. f(-1.5)
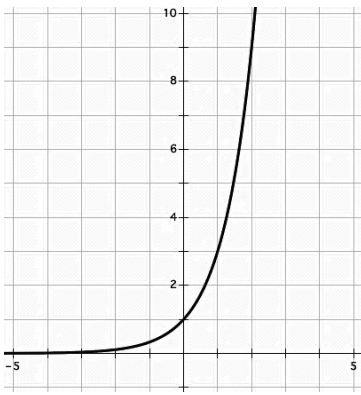
5. Find the x-value for each of the given outputs:
        a. If f(x)=3, x=_____
        b. If f(x)= 0, x= _____
        c. If f(x)= -1, x=_____

6. What is the minimum and maximum of the graph?

7. On what intervals is the function increasing?

8. List all the intercepts.
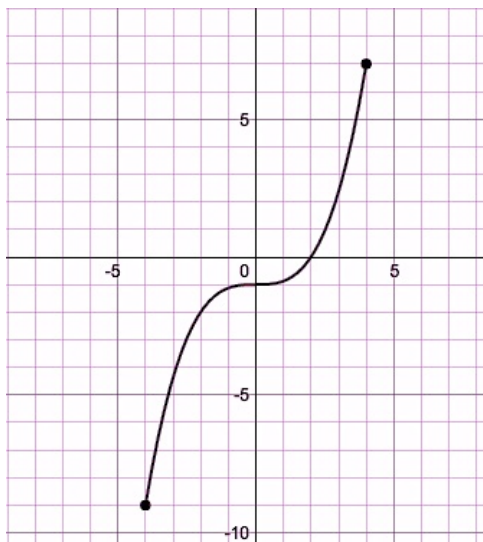
The graph below is the graph of the function g(x).

9) $g(2) =$ _____

10) $g(x) = 3$, $x =$

11) $g(0) =$ _____

12) What is the explicit rule for g (x)

Answer the following questions using the graph h(x) on below.

Find the following values:

13. h(2)   14. h(0)
15. h(4)   16. h(-3)

Find the x-value for each of the given outputs.

17. If h(x) = 1, x=_____
18. If h(x) = -2, x=_____
19. If h(x) = 7, x=_____
20. If h(x) = -9, x=_____

**Given the descriptions below, sketch a possible graph of the function.**

21.
- The function has a minimum at -5.
- The function has a maximum at 8.
- The function has two intervals on which it is decreasing and one interval on which it is increasing.
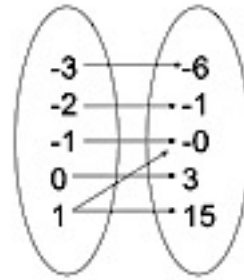- The Domain of the functions contains all Real numbers from 1 to 9.
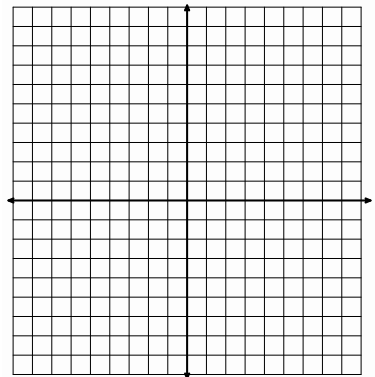
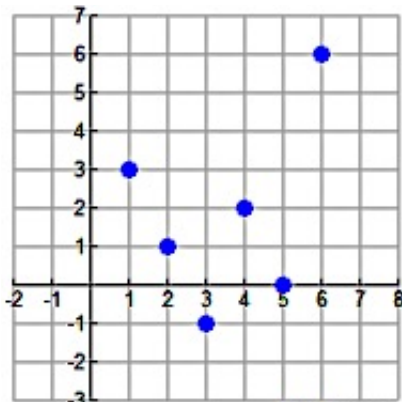Determine whether the following are functions. Explain how you know.

22.
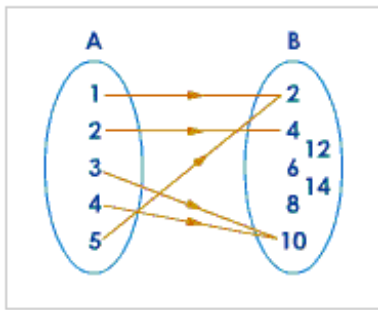
23.

24.

X	Y
1	2
2	4
1	5
3	8
4	4
5	10

25.
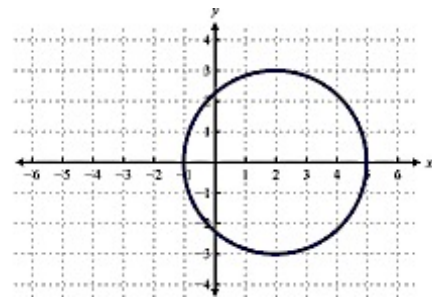
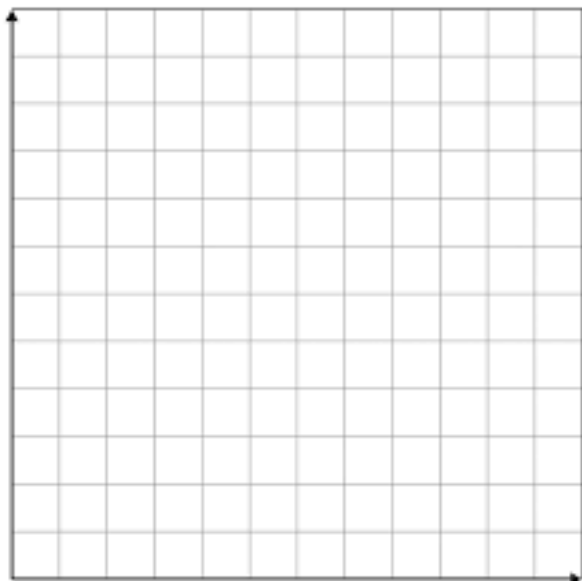| X	Y
1	2
2	4
3	6
4	8
5	10
6	12

26.

27.

28. Explain how you know if a relationship is a function.

29. If $a(x) = -30x + 12$ and $d(x) = 14x - 15$, what is the equation for $g(x)$ if $g(x) = a(x) + b(x)$?

Use the following situation to answer questions 30-35:

Emily makes 30 necklaces to sell at a neighboring boutique. Each day the boutique is open she sells 5 necklaces. The formula for this situation is $f(x) = -5x + 30$.

30) Create a graph of this situation with days as the x-axis and the number of necklaces left as the y-axis.

31) What is the domain of this situation (write in interval notation) and what does it mean in the context?

32) What are the coordinates of the x-intercept(s) and what do they represent in this situation?

33) What are the coordinates of the y-intercept(s) and what do they represent in this situation?

34) Find $f(3)$ and explain what $f(3)$ means in context of this story. Identify $f(3)$ on your graph.

35) When $f(x) = 10$ what is x? What does $f(x) = 10$ mean in context of this story? Identify $f(x) = 10$ on your graph.