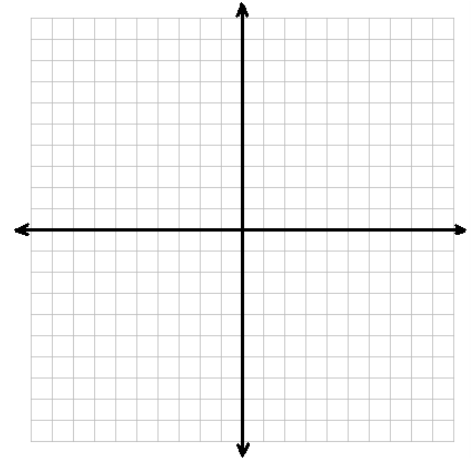


For 1-3, For each relation complete the following

- a) State whether it is linear, exponential, quadratic or none of these
- b) Explain the pattern in words
- c) State the explicit formula
- d) State the recursive formula
- e) Graph the relation

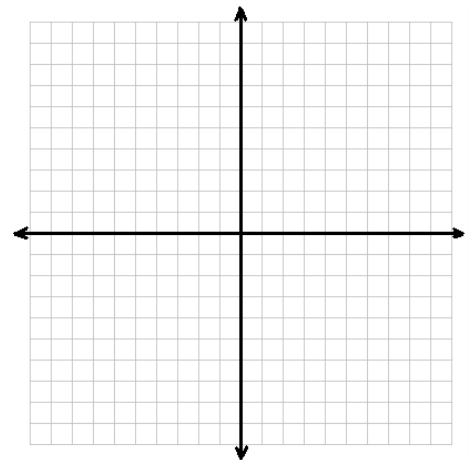
1.

n	f(n)
0	3
1	7
2	11
3	15
4	19
5	23



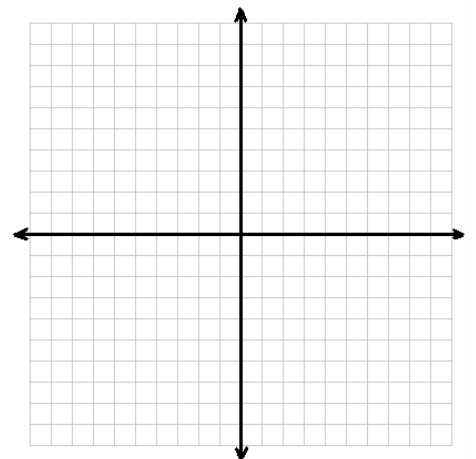
2.

n	f(n)
1	$\frac{1}{9}$
2	$\frac{1}{3}$
3	1
4	3
5	9

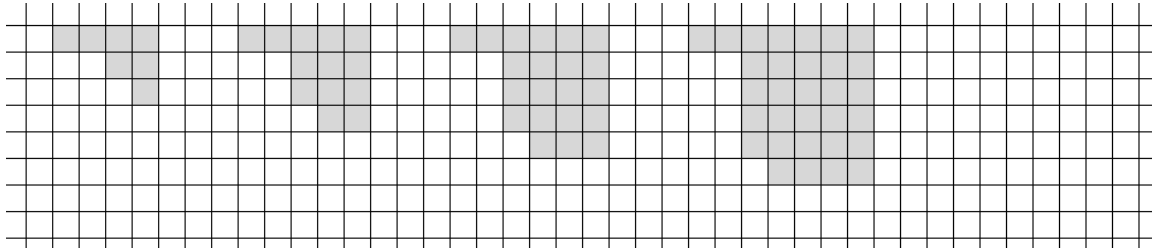


3.

n	f(n)
-3	8
-2	5
-1	4
0	5
1	8
2	13



4. a) Draw the 5th term.
 b) Make a table showing the total number of squares in each picture.
 c) State whether it is quadratic or not. Why?
 d) State the explicit formula
 e) State the recursive formula
 f) How many cubes will be in the 40th figure?



Simplify the following expressions:

5. $3x(2x - 1) + 2(2x - 1)$

6. $4x(x - 5) - 4(x - 5)$

Multiply the following expressions using FOIL:

7. $(3x - 4)(5x - 2)$

8. $(x + 3)(x - 7)$

Multiply the following expressions using the BOX method:

9. $(4x + 3)(2x + 1)$

10. $(x - 3)(x + 5)$

For 9-10, find the Greatest Common Factor of the two given terms.

11. $24a^2b$ and $48ab^3$

12. xy^4z^2 and $6xy^4z^3$

13. Given the relation: $\{(2, 4) (0, -2) (1, 5) (-2, 7) (1, -3)\}$

State the Domain:

State the Range:

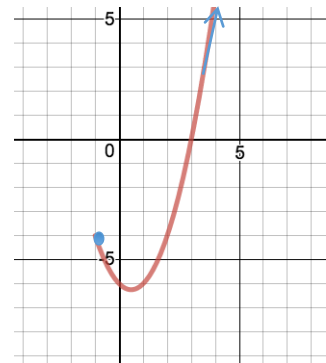
Is it a function? Explain.

14. Given the graph:

State the Domain:

State the Range:

Is it a function? Explain.



15. a) How do you know if a function is linear from the table?

b) How do you know if a function is exponential from the table?

c) How do you know if a function is quadratic from the table?

16. a) How do you know if a function is linear from a graph?
- b) How do you know if a function is exponential from a graph?
- c) How do you know if a function is quadratic from a graph?
17. a) How do you know if a function is linear from a recursive equation?
- b) How do you know if a function is exponential from a recursive equation?
- c) How do you know if a function is quadratic from a recursive equation?
18. a) How do you know if a function is linear from an explicit equation?
- b) How do you know if a function is exponential from an explicit equation?
- c) How do you know if a function is quadratic from an explicit equation?

19. Make a table and graph each equation in a different color on the same set of axes. Label your graph and use appropriate scales. Then, answer the questions below. Mia, Nick and Peeta are in the middle of a race. "y" is the distance traveled in meters and "x" is the amount of time it takes in seconds. (negative times represent 1 or 2 minutes ago)

Mia $y = 2x + 5$

x	y
-2	
-1	
0	
1	
2	
3	

Nick $y = 3^x$

x	y
-	
2	
-	
1	
0	
1	
2	
3	

Peeta $y = (x + 1)^2$

x	y
-2	
-1	
0	
1	
2	
3	

a) Who is ahead at 2 seconds?

b) Who reaches 20 meters first?

c) Who is traveling at a constant rate of change?
Explain how you know this.

d) If the race is only 8 seconds, who wins and why?

