

Name _____

Date _____ Pd. _____

Notes: Writing Equations from Patterns**NOTES****Writing Equations From Patterns**

Example:

Determine the constant differences.

x	1	2	3	4	5
y	4	7	10	13	16

The constant difference for x terms isThe constant difference for y terms isThis looks like a $3x$ pattern, but do the solutions to $y = 3x$ result in the values in the table?Create a table with a row for $3x$ between the x and y rows.

x	1	2	3	4	5
$3x$					
y	4	7	10	13	16

Compute the values of $3x$ and write them in the $3x$ row.Writing the $3x$ row provides a visual clue for students so that they are able to see the relationships between the values and determine the equation.

x	1	2	3	4	5
$3x$	3	6	9	12	15
y	4	7	10	13	16

Analyze the relationship between the values in the $3x$ row and the y row.The values in the y row are one more than the values in the $3x$ row.This suggests the equation is $y = 3x + 1$.

Check to see that this equation represents the relationship in the table.

Name _____

Date _____ Pd. _____

Exit Card: Writing Equations from Patterns

Toy blocks are used to build a tower. The surface area and volume of the tower built with these blocks is shown in the table below.

MODEL TOWER VALUES

Number of Blocks	Surface Area (in square centimeters)	Volume (in cubic centimeters)
1	18	4
2	30	8
3	42	12
4	54	16
5	?	?
6	?	?

Complete the following in the Answer Book:

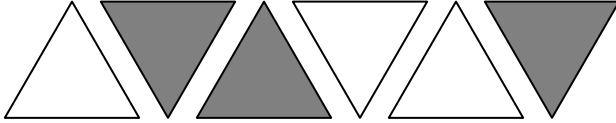
- Complete the table to determine the surface area and the volume for 5 and 6 blocks.
- Write an algebraic expression to represent the relationship between the number of blocks and the surface area of the tower. Use mathematics to justify your answer.
- If 10 blocks are used, what is the surface area and the volume of the tower? Use mathematics to explain how you determined your answers. Use words, symbols, or both in your explanation.

Name _____

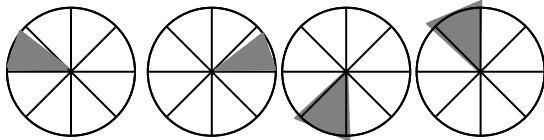
Date _____ Pd. _____

Homework: Pages 244 – 245 (12 – 17, 20 – 23)

12. Find the next two items in the pattern. Then determine the 21st figure in the pattern.



13. Find the next two items in the pattern. Then determine the 21st figure in the pattern.



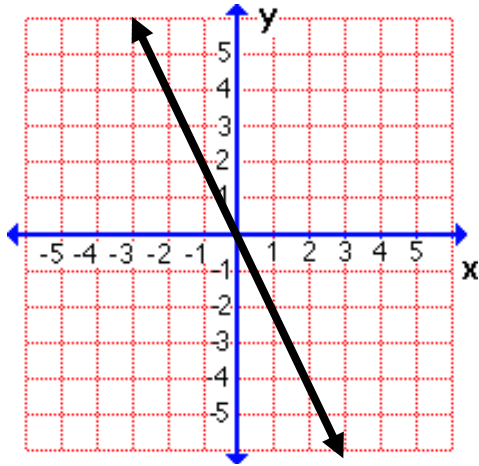
14. Find the next three terms in the sequence: 0, 2, 6, 12, 20, ...

15. Find the next three terms in the sequence: 9, 7, 10, 8, 11, 9, 12, ...

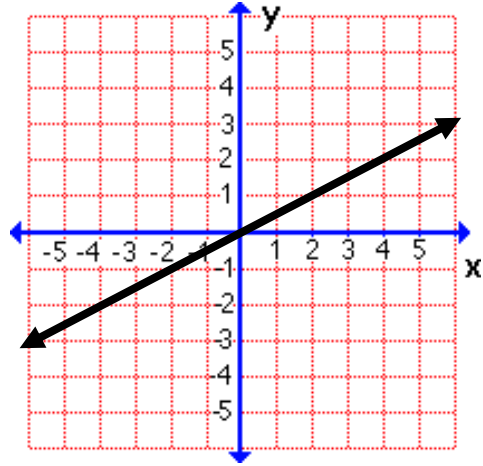
16. Find the next three terms in the sequence: 1, 4, 9, 16, ...

17. Find the next three terms in the sequence: 0, 2, 5, 9, 14, 20, ...

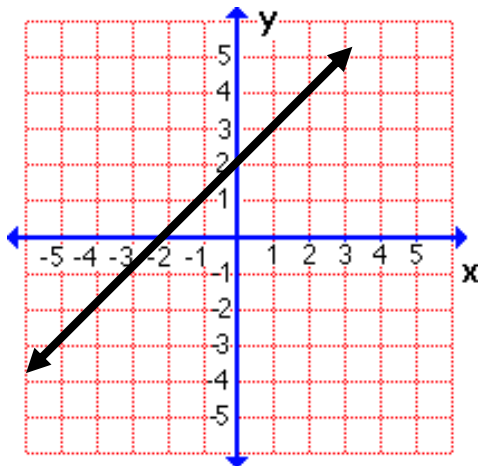
20. Write an equation in function notation for the graph.



21. Write an equation in function notation for the graph.



22. Write an equation in function notation for the graph.



23. Write an equation in function notation for the graph.

