

Review

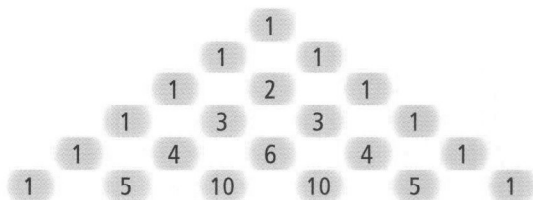
Key Words

For questions 1 to 4, match each word to the correct definition.

- | | |
|---|----------------------|
| 1. a pattern of numbers | A fractal |
| 2. a pattern of shapes, lines, or colours that gets smaller as it repeats | B n th term |
| 3. an item in a pattern | C origami |
| 4. a letter that represents a number or numbers | D sequence |
| | E variable |

6.1 Identify Patterns, pages 182–185

For questions 5 and 6, use Pascal's triangle.



- Ben is making pancakes for his mother's birthday. He has two toppings: maple syrup and strawberry sauce. In how many different ways can Ben serve the pancakes?
- Ben's sister Sara arrives home with bananas from the store. In how many different ways can Ben and Sara serve their pancakes now that they have maple syrup, strawberry sauce, and sliced bananas?
- Create a fractal that starts with a quadrilateral. Show the first three stages of your fractal.

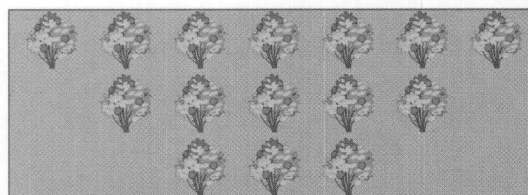
- The first three rows of a number pattern are shown.

Column A	Column B	Column C	Column D	Column E
1	2	3	4	5
6	7	8	9	10
11	12	13	14	15

- Copy the pattern and continue Column C for two more numbers.
- Describe the diagonal pattern 2, 8, 14.

6.2 Define Patterns Using Algebra, pages 186–191

- A garden has three rosebushes in the first row, five rosebushes in the second row, seven rosebushes in the third row, and so on.



- Describe the pattern in words.
 - Use a table to show the number of rosebushes in each of the first five rows.
 - Write a formula to model the number of rosebushes in the n th row.
 - How many rosebushes are in the 10th row?
- Copy and complete a table for each sequence. Extend your table to show two more terms for each sequence.

Term	Value

 - 3, 8, 13, 18, ...
 - $\frac{2}{3}, \frac{4}{3}, \frac{6}{3}, \frac{8}{3}, \dots$
 - 70, 65, 60, 55, ...
 - $2^2, 3^2, 4^2, 5^2, \dots$

6.3 Explore Relationships on a Grid, pages 192–197

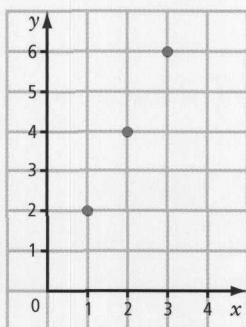
11. Plot the ordered pairs on a grid. Describe the pattern. Then, write an equation that models the pattern.

x	0	1	2	3
y	5	9	13	17

12. At a skateboard park, there is a low rail to skate down. Makayla's height as she skates down the rail is recorded in the table.

Distance Travelled Along the Rail, d (m)	Makayla's Height Above the Ground, h (cm)
0	60
1	55
2	50
3	45

- a) List the ordered pairs. Then, plot them on a grid.
 b) Describe the pattern in words.
 c) Write an equation to model the pattern.
13. a) Make a table of values for the ordered pairs plotted on the grid.



- b) Extend your table to show three more values for x and y .
 c) Describe the pattern of points.
 d) Write an equation to model the pattern.

6.4 Apply Patterning Strategies, pages 198–203

14. Study the pattern of stacked 1-cm squares.

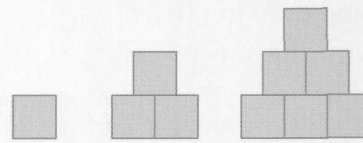


Diagram 1 Diagram 2 Diagram 3

- a) Use a table to record the perimeter of each shape.
 b) Describe the relationship between the perimeter of a shape and the diagram number.
 c) Model the relationship with a formula.
 d) Which diagram in the pattern would have a perimeter of 44 cm?
15. You are planning a checkers tournament. A player who wins a game advances to play against another winner in the next round. A player who loses a game is eliminated.
- a) How many checkers players can enter a tournament that takes five rounds to find the overall winner?
 b) How many players can enter a tournament that needs n rounds?
16. Is Maria correct in her thinking? Explain.

Four people sit around each table. I have four tables—that's 16 people. No one sits at the insides because the tables are pushed together. So, I'll subtract 3. The number of people is $16 - 3 = 13$.

