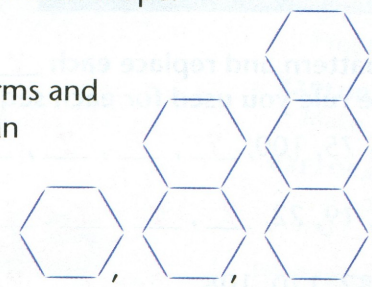
16. Each shape at the right is made with toothpicks. A sequence can be formed by listing the number of toothpicks in each shape.



a. Make a table and record the first five terms.

b. Think about the relationship between the terms and the term numbers. Write an equation that can be used to find any term in the sequence.

c. How many toothpicks would be needed to build the 12th shape?

17. **Challenge** Look back at Exercise 7 on page 22. Explain how you could find the number of cells in the 25th term.

18. **Visual Thinking** Use the shape sequences on pages 18 and 20 to help answer the following questions.

a. Is the sum of an even number and an odd number *even* or *odd*? How can you tell?

b. Is the sum of two odd numbers *even* or *odd*? Explain.

Reflecting on the Section

Be prepared to discuss your response to Exercise 19 in class.

19. *Start with 3 and add 4 to each term to get the next term*

and

the term is 1 less than 4 times the term number

are both rules for the sequence 3, 7, 11, 15, 19, ...

For each rule, give an example of a problem that you would use the rule to solve. Explain why you would choose that rule to solve the problem.

Discussion

Exercise 19 checks that you understand how different kinds of rules can be used to create or extend patterns.

Spiral Review

Write each number in words. (Toolbox, p. 565)

20. 3672 21. 671,598 22. 23,856

Find each sum or difference. (Toolbox, pp. 568, 570)

23. 534 + 682 24. 291 − 156 25. 7256 + 873

26. 5473 − 598 27. 32,567 − 9239 28. 294 + 67 + 141

Draw a picture of each shape.

29. triangle 30. square 31. rectangle