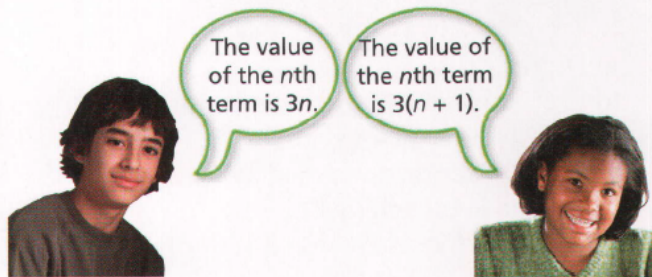


1. a) Describe the sequence 1, 4, 7, 10, ....
- b) What is the value of the first term? third term?
- c) Explain how to find which term has a value of 19.

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2. Brian and Leanne each got a different value for the  $n$ th of the pattern shown in the table. Who is correct? Why? What mistake did the other person make.

Term	Value	Pattern
1	$6 = 3 + 3$	$3 \times 2$
2	$9 = 3 + 3 + 3$	$3 \times 3$
3	$12 = 3 + 3 + 3 + 3$	$3 \times 4$
4	$15 = 3 + 3 + 3 + 3 + 3$	$3 \times 5$



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5. Examine the pattern of equilateral triangles.



- Describe the relationship between the number of triangles and the perimeter of the shape.
- Write a formula to model the perimeter of a row of triangles.
- Find the perimeter of a shape with 14 triangles.

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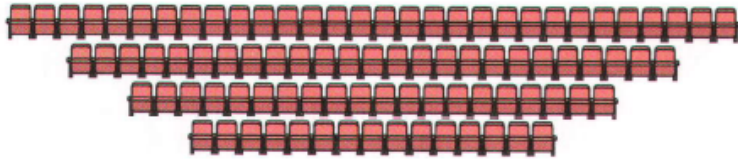
6. Look at the pattern of cubes. Each cube has a smiley face sticker on every exposed face.



- Describe the relationship between the number of cubes and the number of smiley faces.
- Develop an equation to model the number of smiley faces.
- How many smiley faces are on 10 cubes?

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7. A theatre has 15 seats in the first row, 20 seats in the second row, 25 seats in the third row, and so on.



- Describe the pattern.
- Use a table to show the number of seats in each of the first five rows.
- Develop a formula to model the number of seats in the  $n$ th row.
- How many seats are in the 16th row?

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8. A marching band has 3 musicians in the first row, 5 musicians in the second row, 7 musicians in the third row, and so on.



- Explain the pattern in words.
- Model the number of musicians in the  $n$ th row using a formula.
- How many musicians are in the 10th row?

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9. Copy and complete a table of values for each sequence. Show the first six terms.

Term	Value

a)  $\frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \dots$

b) 486, 162, 54, 18, ...

c) 5, 8, 11, 14, ...

d) 99, 90, 81, 72, ...

Term	(a)	(b)	(c)	(d)
1	1/3	486	5	99
2	1/4	162	8	90
3	1/5	54	11	81
4	1/6	18	14	72
5				
6				

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10. Look at the sequence

$$1^2 + 1, 2^2 + 2, 3^2 + 3, 4^2 + 4, \dots$$

- a) Describe how the value of each term is related to the term number.
- b) Which term in the sequence has a value of 12?
- c) Write an expression for the value of the  $n$ th term.

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