7th grade Task 2 Hexagons

Student Task	Find and extend a number pattern in the context of hexagonal designs. Give a rule or formula for determining the perimeter of each growing design.
Core Idea 2 Algebra and Functions	**Understand relations and functions, analyze mathematical situations and use models to solve problems involving quantity and change.** • Represent, analyze, and generalize a variety of functions including linear relationships • Express mathematical relationships using expressions and equations • Use symbolic algebra to represent situations to solve problems

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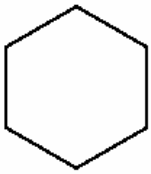
Hexagons

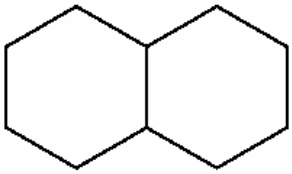
This problem gives you the chance to:
- recognize and extend a number pattern in a geometric situation
- find a rule for the pattern

Maria has some hexagonal tiles.
Each side of a tile measures 1 inch.
She arranges the tiles in rows; then she finds the perimeter of each row of tiles.

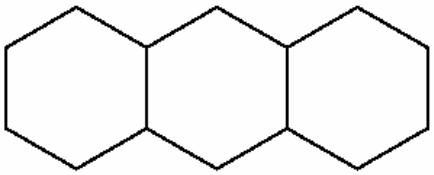
1 tile
perimeter = 6 in.



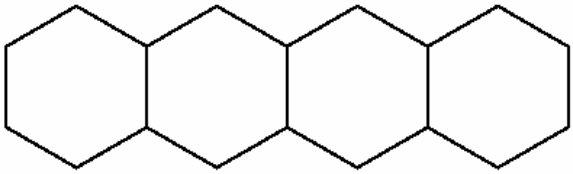
2 tiles
perimeter = 10 in.



3 tiles



4 tiles



Maria begins to make a table to show her results.

Number of tiles in a row	Perimeter in inches
1	6
2	10
3	
4	

1. Fill in the empty spaces in Maria's table of results.
What will be the perimeter of 5 tiles? _____ inches

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2. Find the perimeter of a row of 10 tiles. _____ inches
Explain how you figured it out.

_____

_____

_____

3. Write a rule or formula for finding the perimeter of a row of hexagonal tiles when you know the number of tiles in the row.
Let n = the number of tiles, and p = the perimeter.

_____

_____

_____

_____

4. Find the perimeter of a row of 25 hexagonal tiles.
Show your work. _____ inches

5. The perimeter of a row of hexagonal tiles is 66 inches.
How many tiles are in the row? _____

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Hexagons — Test 7 Form A Rubric

The core elements of performance required by this task are:
- recognize and extend a number pattern in a geometric situation
- find a rule for the pattern

Based on these, credit for specific aspects of performance should be assigned as follows:

	Points	Section Points
1. Completes the table correctly by writing in the numbers:		
Number of tiles in a row: 1 — Perimeter in inches: 6		
Number of tiles in a row: 2 — Perimeter in inches: 10		
Number of tiles in a row: 3 — Perimeter in inches: **14**		
Number of tiles in a row: 4 — Perimeter in inches: **18**	2×1	
Gives correct answer as:		
22 inches	1	3
2. Gives correct answer as:		
42 inches	1	
Gives a correct explanation such as:		
The perimeter increases by 4 each time: $22 + 5 \times 4 = 42$	1	2
3. Gives a correct rule such as:		
$p = 4n + 2$	2	
Accept verbal equivalents.		2
4. Gives correct answer as:		
102 inches	1	
Shows correct work such as:		
$p = 4 \times 25 + 2 =$	1	2
5. Gives correct answer as:		
16	1	1
Total Points		**10**