

Answer Key

1. The image below shows a pattern of sections from a fence made from boards.

a. Sketch the next two sections of the fence:



b. Complete the following chart:

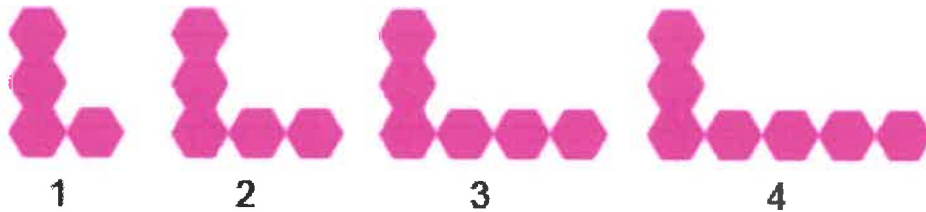
Fence # (variable)	# of boards
1	4
2	7
3	10
4	13
5	16

c. How many boards are added for each new section? 3.

d. If the same number of boards has been added to each fence section, how many boards would 'fence zero' theoretically have? 1 This number will be the constant.

e. If "x" is used to represent the fence #, the equation can be represented by: $y = 3x + 1$

2.



a. Complete the table on the right for the pattern shown above

b. Every time the figure number increases by one the number of hexagons increases by 1

c. How many hexagons would be in the 'zero' figure? 3.

d. Write the expression that represents the relationship between the figure number and the number of hexagons.

Figure # (variable)	# of hexagons
1	4
2	5
3	6
4	7
5	8

$y = 1x + 3$

3. Draw the next two figures in this toothpick pattern:

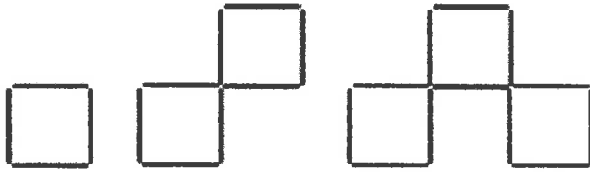
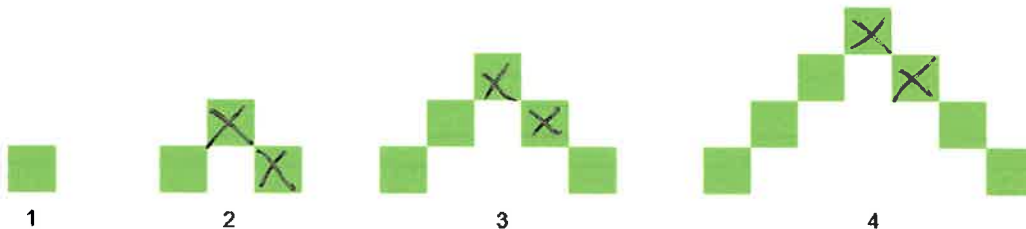


Figure	Number of toothpicks
1	4
2	8
3	12
4	16
5	20
10	20 40

Write an expression for the relationship between the figure number and the number of toothpicks:

$$y = 4x$$

4.



Write an expression for the relationship between the figure and the number of squares:

$$y = 2x - 1$$

↑
since
Fig 0 would
has $\underline{1 - 2 = -1}$

5. Complete the pattern in this table:

x	1	2	3	4	5	6
y	4	8	12	16	20	24

Which expression represents this pattern?

a. $x + 4 = y$

b. $4 + 4 = y$

c. $4x = y$

d. $y = x + 1$

6. Complete the pattern in this table:

x	3	5	7	9	11	13
y	8	10	12	14	16	18

Handwritten annotations: $+2$ above 3 to 5 and 5 to 7; $+2$ below 8 to 10 and 10 to 12.

Slope is: $\frac{2}{2} = 1$

Starting value is 5!

Circle the expression represents this pattern?

$2x = y$

$2x + 2 = y$

$2x - 2 = y$

$x + 5 = y$

0	1	2	3
5	6	7	8

7. Create an expression from the following table of values:

Term	Number
1	2
2	3
3	4
4	5
5	6

a. How much does the number increase for each term (variable)? 1

b. What would the number be at the "0 term" (constant)?

1

c. What expression would represent the pattern?

$y = x + 1$

8. Create an expression from the following table of values:

Term	Number
1	1) $+2$
2	3) $+2$
3	5) $+2$
4	7) $+2$
5	9) $+2$

1. What equation would represent the pattern?

$y = 2x - 1$

2. Verify the equation by substituting values from the table.

$y = 2(5) - 1$

$y = 10 - 1$

$y = 9$

$(5, 9)$ is on the table! ✓