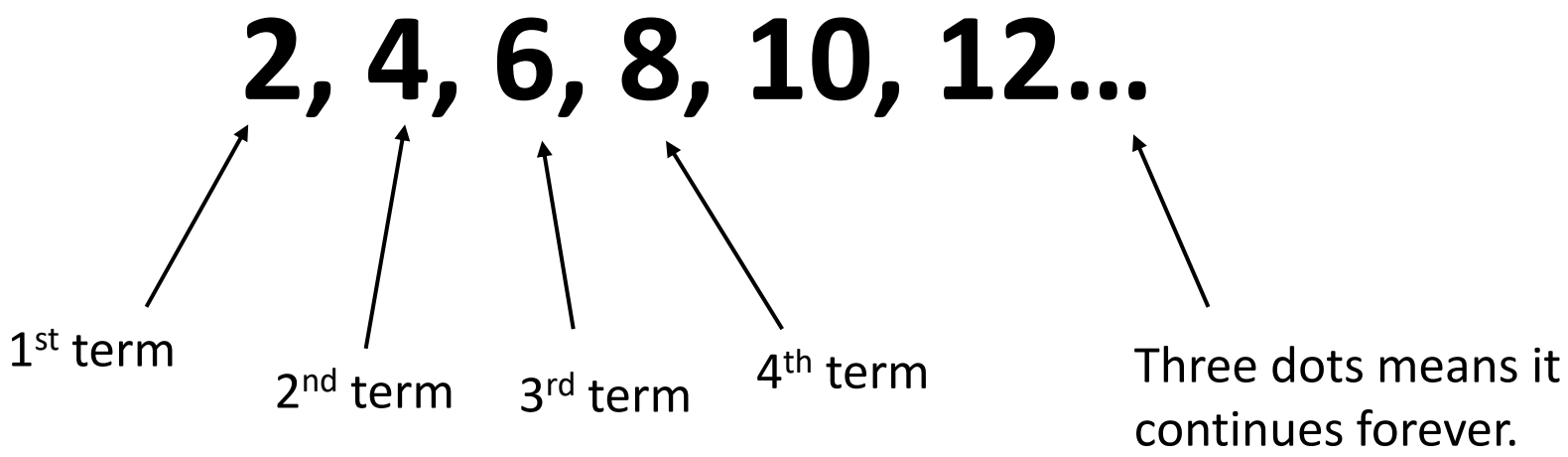
Term to term rule

Next

Literacy

Back Next

Term to term Going from one term to the next.



Term to term rule: How you get from one term to the next.
For the sequence above it would be **add 2.**

Term to term rule

Back Next

For the following sequences write down the **next term** and the **term to term rule.**

1. 3, 6, 9, 12, 15…
2. 12, 16, 20, 24, 28…
3. 19, 15, 11, 7, 3…
4. 1.5, 3.5, 5.5, 7.5, 9.5…
5. 5, 10, 20, 40, 80…
6. 0, 1, 1, 2, 3, 5, 8…
7. 0.5, $\frac{13}{20}$, $\frac{4}{5}$, 0.95…
8. 0, 3, 8, 15, 24…
9. 10, 5, $\frac{5}{2}$, 1.25

$\frac{3}{8}, \frac{5}{11}, \frac{7}{14}, \frac{9}{17}, \frac{11}{20} \ldots$

Answers

Back Next

For the following sequences write down the **next term** in the sequence and the **term to term rule.**

1. 3, 6, 9, 12, 15… **18** **+3**
2. 12, 16, 20, 24, 28… **32** **+4**
3. 19, 15, 11, 7, 3… **-1** **-4**
4. 1.5, 3.5, 5.5, 7.5, 9.5… **11.5** **+2**
5. 5, 10, 20, 40, 80… **160** **x2**

Add the two previous terms

6. 0, 1, 1, 2, 3, 5, 8… **13**
7. 0.5, $\frac{13}{20}$, $\frac{4}{5}$, 0.95… **1.1** **+0.15**
8. 0, 3, 8, 15, 24… **18** **+3,+5,+7…**
9. 10, 5, $\frac{5}{2}$, 1.25 $\frac{5}{8}$ **÷2**

$\frac{3}{8}, \frac{5}{11}, \frac{7}{14}, \frac{9}{17}, \frac{11}{20}$ … $\frac{13}{23}$ $\frac{+2}{+3}$

Term to term rule

Back Next

Here is a number sequence.

6 9 12 15 18 ___

1 What is the next term in the sequence?

2 Write down the rule for continuing the sequence.

3 What is the first term that will be a multiple of 20?

Extra

4 Can you connect the **term number** with the sequence?

1	**2**	**3**	**4**	**5**	**6**	**n**
16	19	22	25	28		

Answers

Back Next

Here is a number sequence.

6 9 12 15 18 21

1 What is the next term in the sequence?

2 Write down the rule for continuing the sequence. **Add 3**

3 What is the first term that will be a multiple of 20? **60**

Extra

4 Can you connect the **term number** with the sequence? **x 3 + 3**

1	2	3	4	5	6	n
6	9	12	15	18	21	**3n + 3**

Term to term rule

Back Next

Here is a number sequence.

31 **26** **21** **16** **11** ___

1 What is the next term in the sequence?

2 Write down the rule for continuing the sequence.

3 What is the first **negative** term in the sequence?

Extra

4 Can you connect the **term number** with the sequence?

1	**2**	**3**	**4**	**5**	**6**	**n**
31	26	21	16	11		

Answers

Back Next

Here is a number sequence.

31 **26** **21** **16** **11** **6**

1 What is the next term in the sequence?

2 Write down the rule for continuing the sequence. **Subtract 5**

3 What is the first **negative** term in the sequence? **-4**

Extra

4 Can you connect the **term number** with the sequence? **36 – (5 x n)**

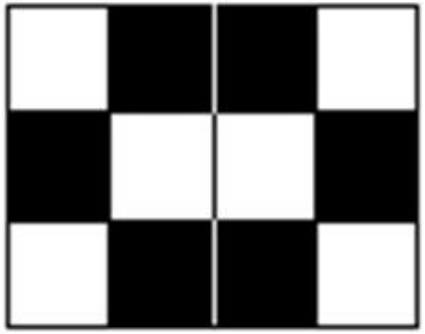
1	2	3	4	5	6	n
31	26	21	16	11	6	**36 – 5n**

Term to term rule

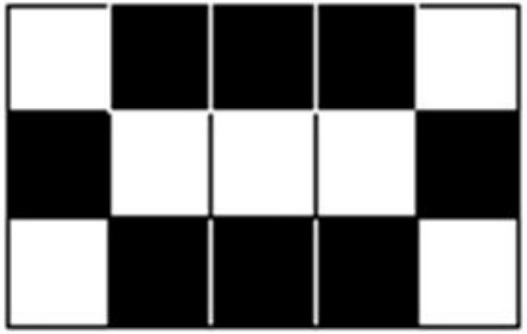
Back Next

A sequence of patterns uses black squares and white squares.
Here are the first three patterns.

Pattern 1



Pattern 2



Pattern 3

1 Complete the table.

	1	2	3	4	5
White	5	6	7		
Black	4	6			

2 What is the term to term rule for the black squares?

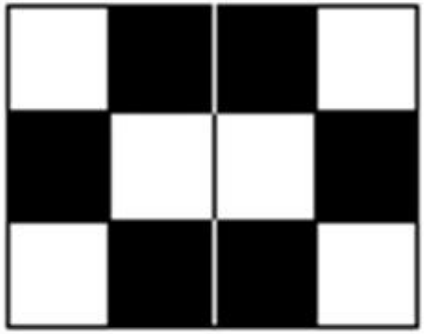
Extra

3 Let n be the pattern number, what is the rule for the nth term? (black)

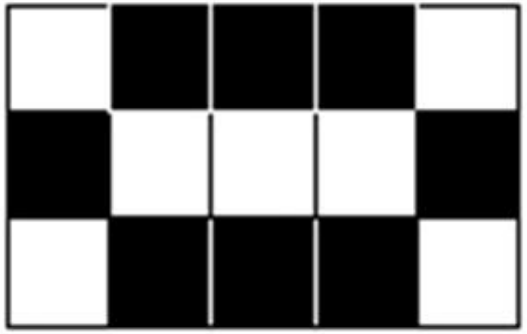
Answers

A sequence of patterns uses black squares and white squares.
Here are the first three patterns.

Pattern 1



Pattern 2



Pattern 3

1 Complete the table.

	1	2	3	4	5
White	5	6	7	**8**	**9**
Black	4	6	**8**	**10**	**12**

2 What is the term to term rule for the black squares? **Add 2**

Extra

3 Let n be the pattern number, what is the rule for the nth term? **2n + 2**

Term to term rule

Back Next

Here is a rule for a sequence.

After the first two terms, each term is half the sum of the previous two terms.

Here is a sequence that follows this rule.

2 10 6 ....

1 Show that the 6th term is the first one that is **not** a whole number.

A different sequence follows the **same rule**.

The 1st term is **4**

The 3rd term is **9.5**

4 ..... 9.5

2 Work out the 2nd term.

Answers

Here is a rule for a sequence.

After the first two terms, each term is half the sum of the previous two terms.

Here is a sequence that follows this rule.

2 10 6 8 7 7.5 .....

1 Show that the 6th term is the first one that is **not** a whole number.

A different sequence follows the **same rule**.

The 1st term is **4**

The 3rd term is **9.5**

4 15 **9.5**

$\frac{4+x}{2} = 9.5$ $\times 2$

$4 + x = 19$ -4

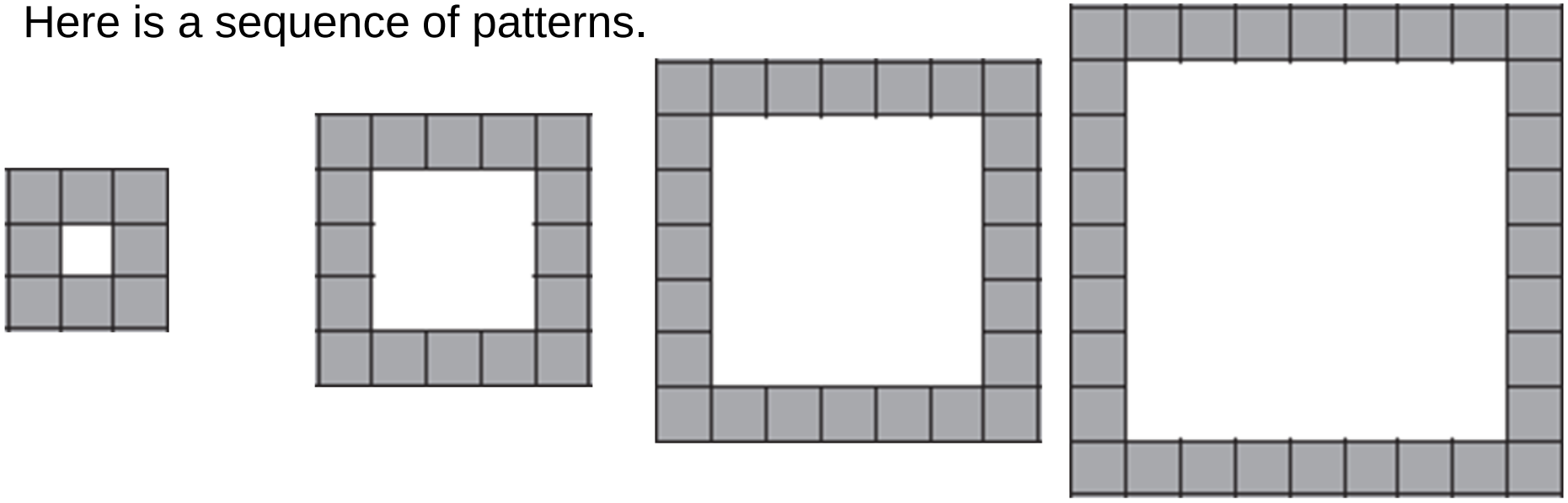
$x = 15$

2 Work out the 2nd term.

Term to term rule

Back Next

Here is a sequence of patterns.



Pattern 1 Pattern 2 Pattern 3 Pattern 4

1 Complete the table.

	Pattern 1	Pattern 2	Pattern 3	Pattern 4
Number of shaded squares	8			

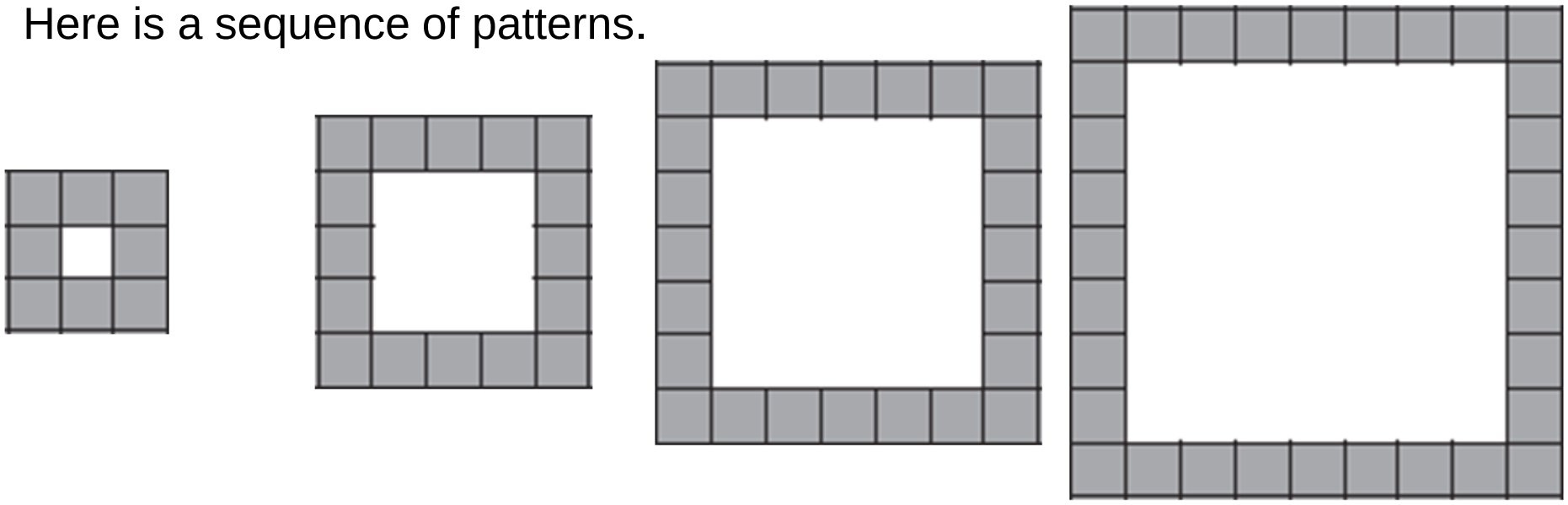
How many shaded squares are in Pattern 7? **Do not draw it!**

Method 1 Method 2 Method 3

Answers

Back Next

Here is a sequence of patterns.



Pattern 1 Pattern 2 Pattern 3 Pattern 4

1

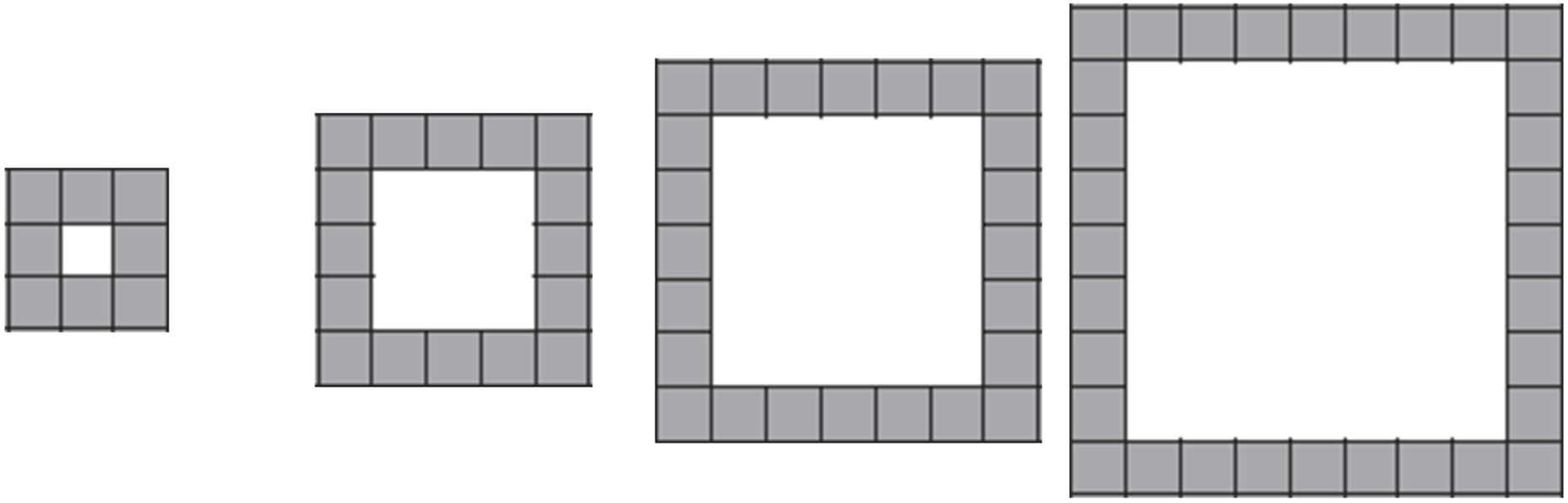
	Pattern 1	Pattern 2	Pattern 3	Pattern 4
Number of shaded squares	8	**16**	**25**	**32**

How many shaded squares are in Pattern 7? **56**

Method 1 Method 2 Method 3

Hint

Back



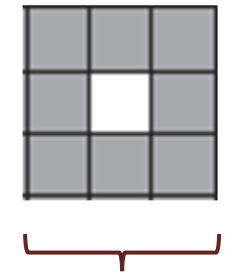
Pattern 1 Pattern 2 Pattern 3 Pattern 4

Pattern	1	2	3	4	n
Square	$3^2 = 9$				
Centre	$1^2 = 1$				
Shaded	8				

Answers

Back

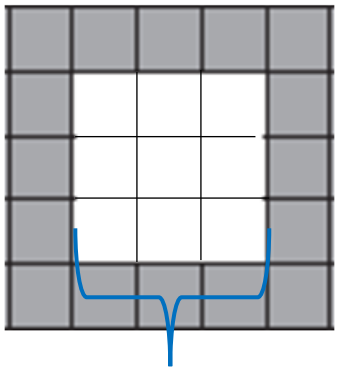
Here is a sequence of patterns.



3 units across

x2 + 1

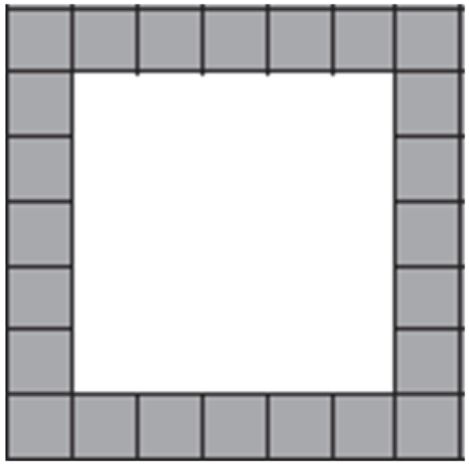
Pattern 1



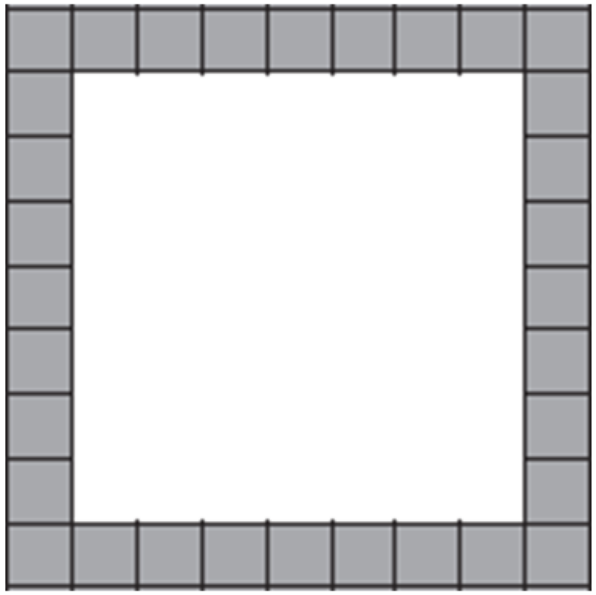
3 units across

x2 - 1

Pattern 2



Pattern 3



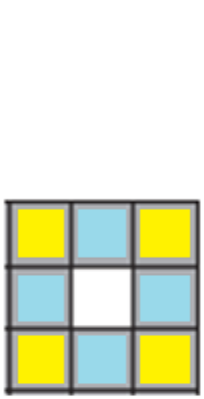
Pattern 4

Pattern	1	2	3	4	n
Square	$3^2 = 9$	$5^2 = 25$	$7^2 = 49$	$9^2 = 81$	$(2n+1)^2$
Centre	$1^2 = 1$	$3^2 = 9$	$5^2 = 25$	$7^2 = 49$	$(2n-1)^2$
Shaded	8	16	24	32	$(2n+1)^2 - (2n-1)^2$

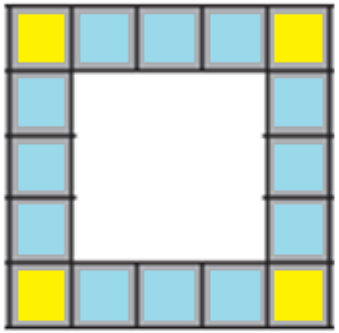
$(2x7+1)^2 - (2x7-1)^2 = 56$

Hint

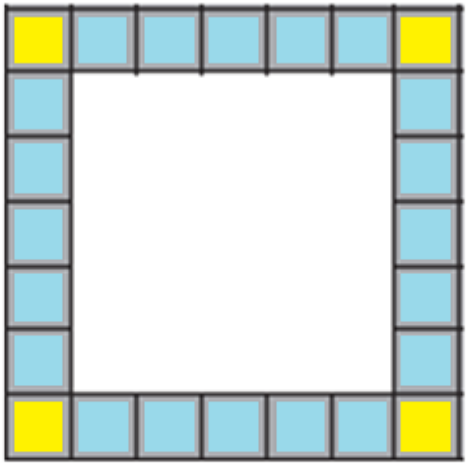
Back



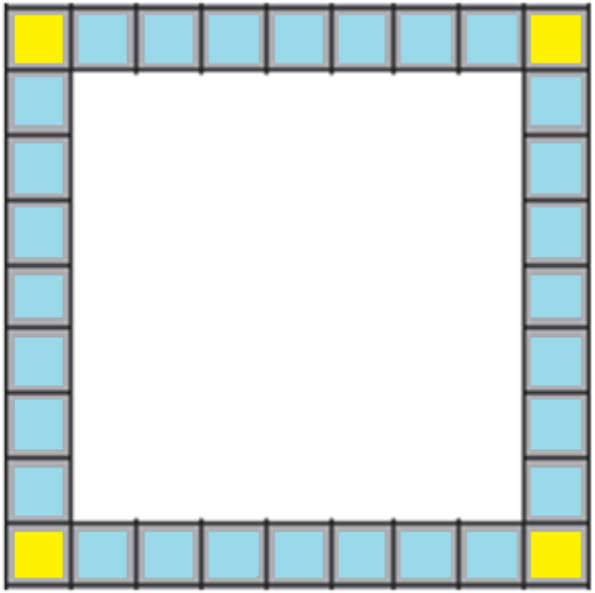
Pattern 1



Pattern 2



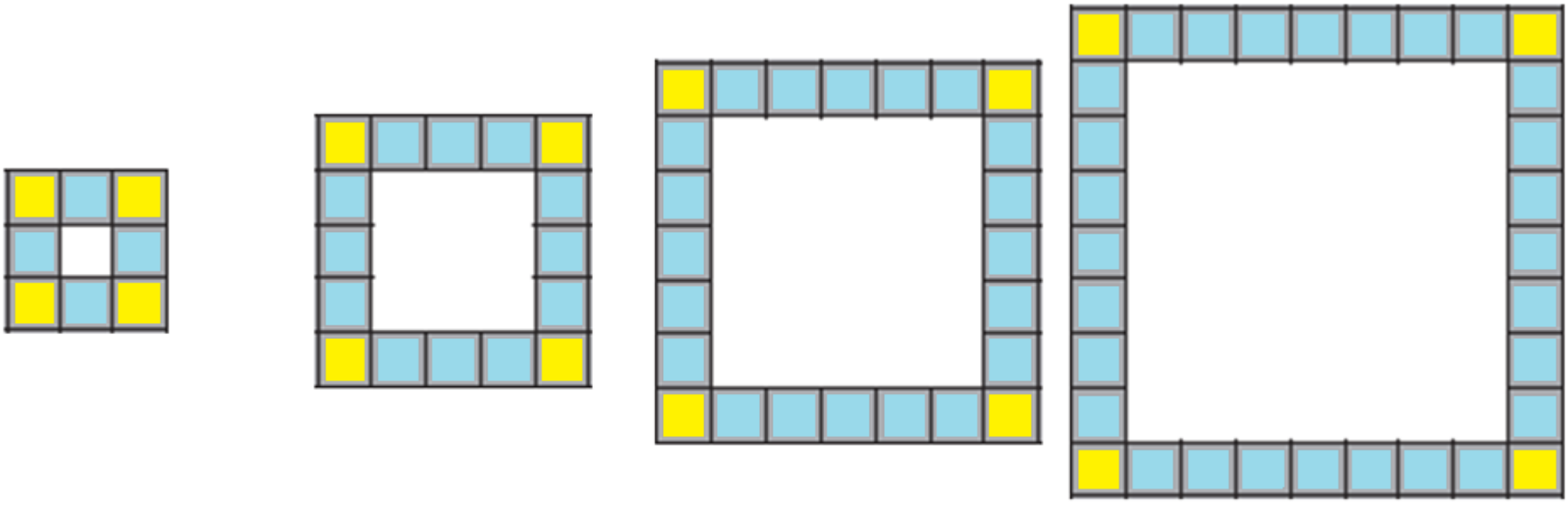
Pattern 3



Pattern 4

Answers

Back



Pattern 1 Pattern 2 Pattern 3 Pattern 4

To get from the pattern number to the number of blue squares across you **times by 2 and subtract 1.**

2n - 1

2 x 7 - 1 = **13**

Four sides

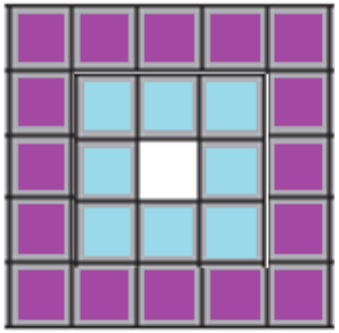
4 x 13 + 4 = **56**

There is always 4 yellow squares in the corners.

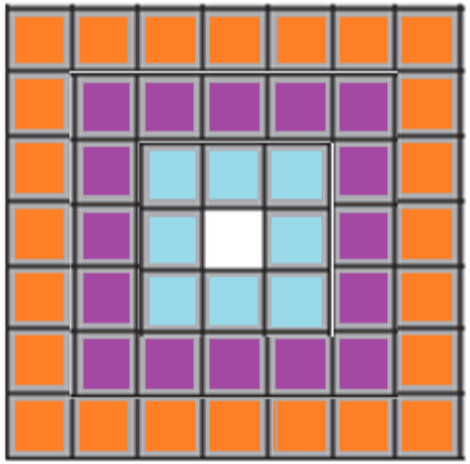
Hint

Back

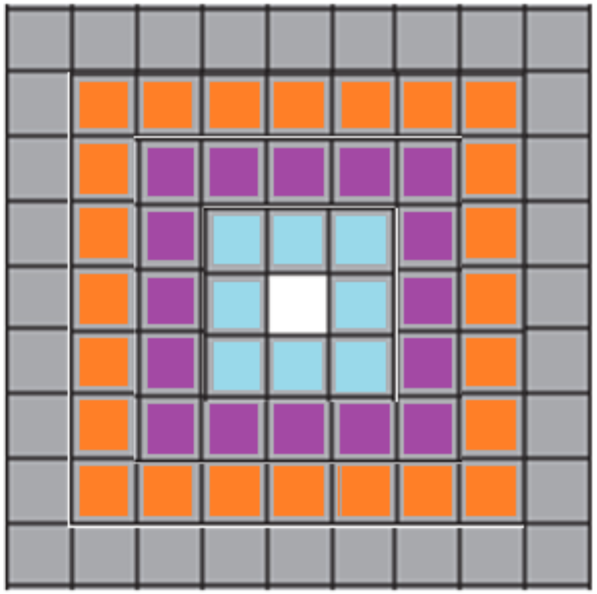
Pattern 1



Pattern 2



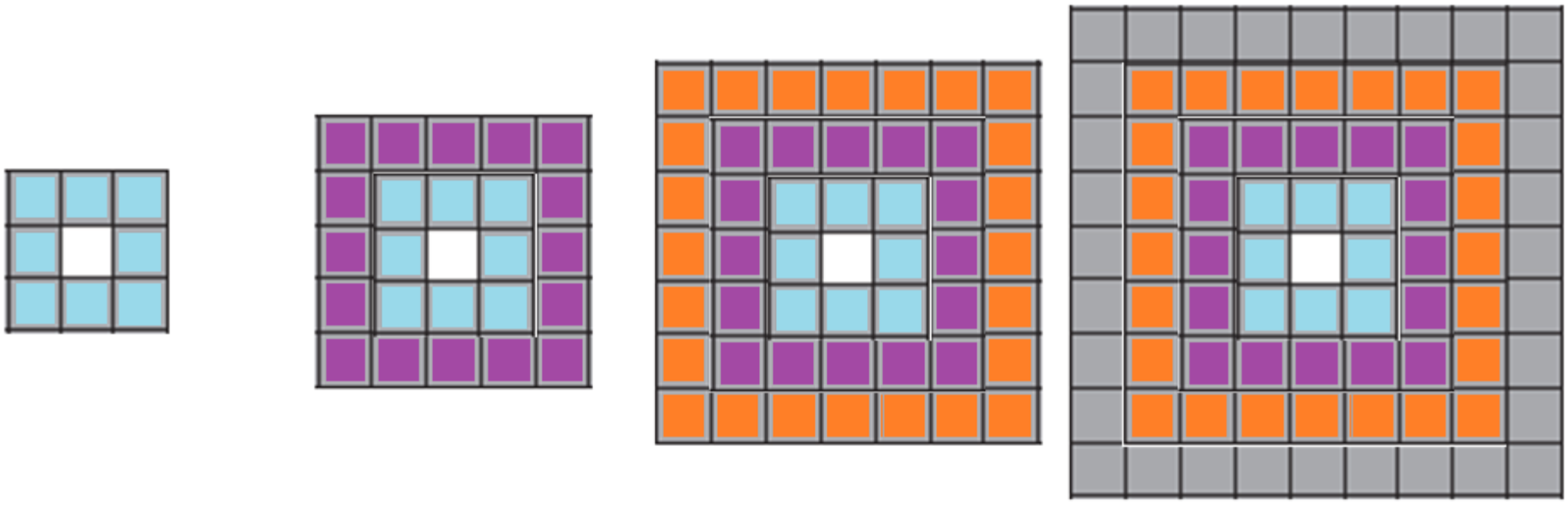
Pattern 3



Pattern 4

Answers

Back



Pattern 1 Pattern 2 Pattern 3 Pattern 4

The squares fit inside each other. So if you subtract the square before you get the number of shaded squares.

To get from the pattern number to the number of squares across you **times by 2 and add 1.**

2n + 1

6th 2 x 6 + 1 = 13

7th 2 x 7 + 1 = 15

$15^2 - 13^2$

= 56

End of the lesson

Back

Well done for completing the lesson.

Reflections