A 2.5 Finding the nth term for linear sequences S

1

7, 9, 11, 13, (15),

$n =$

2

...15, 18, (21), 24, 27,...

$n =$

3

1^{st} 2^{nd} 3^{rd}

3, 4, 5, 6, 7, 8, 9, 10, ...

4

1^{st} 2^{nd} 3^{rd} n^{th}

3, 4, 5, 6, 7, 8, 9, 10, ...

$n^{th}term =$

5

1^{st} 2^{nd}

3, 4, 5, 6, 7, 8, 9, 10, ...

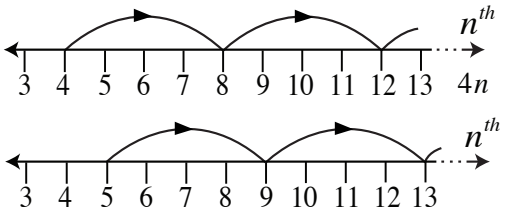
6

1^{st} 2^{nd} n^{th}

3, 4, 5, 6, 7, 8, 9, 10, ...

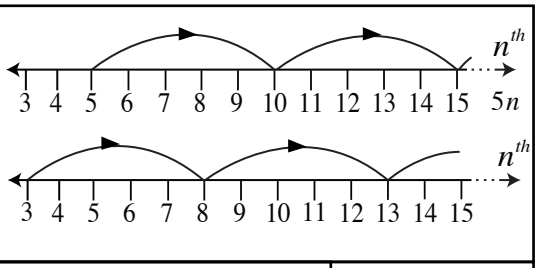
$n^{th}term =$

7



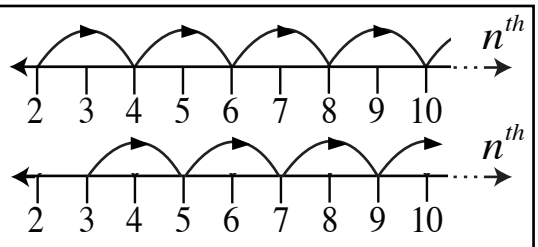
$n^{th}term =$

8



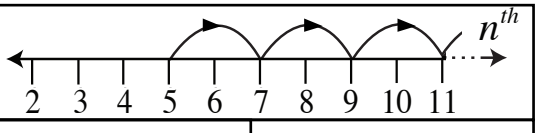
$n^{th}term = 5n$

9



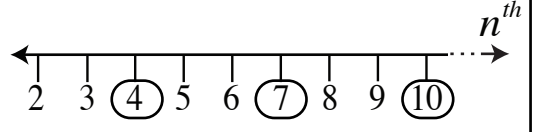
$n^{th}term =$

10



$n^{th}term =$

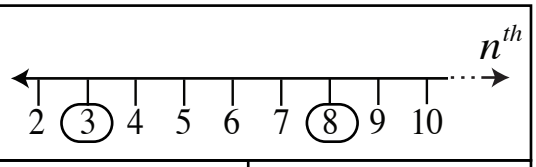
11



$n^{th}term =$

A **2.5** **Finding the nth term for linear sequences (page 2_** **S**

12



$n^{th}term =$

14 2, 8, 14, 20,...

$n^{th}term =$

13 4, 7, 10, 13,...

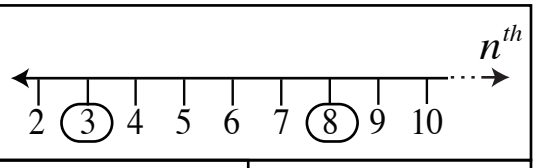
$n^{th}term =$

15 8, 12, 16, 20,...

$n^{th}term =$

A **2.5** **Finding the nth term for linear sequences (page 2)** **S**

12



$n^{th}term =$

14 2, 8, 14, 20,...

$n^{th}term =$

13 4, 7, 10, 13,...

$n^{th}term =$

15 8, 12, 16, 20,...

$n^{th}term =$

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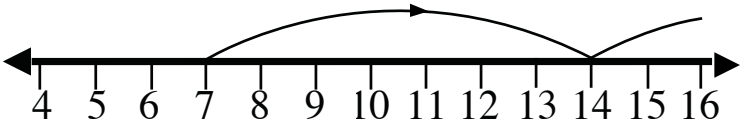
A 2.5 Finding the nth term for linear sequences E

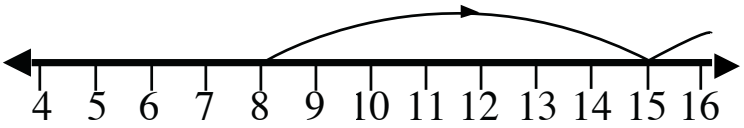
1 Find an expression for the nth term of each sequence.

a



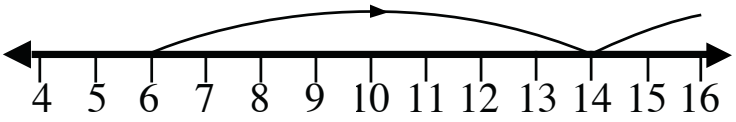
$n^{th} term =$ .....

b



$n^{th} term =$ .....

c



$n^{th} term =$ .....

2 Write down the expression for the nth term for each of the sequences below.

a 11, 22, 33, 44, 55,...

.....

.....

.....

$n^{th} term =$ .....

b 10, 13, 16, 19, 22,...

.....

.....

.....

$n^{th} term =$ .....

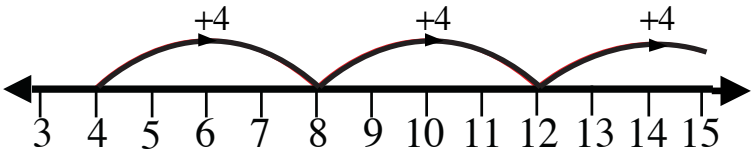
A 2.5 Finding the nth term for linear sequences I

Each term of a sequence is numbered in order.
We call an unknown term the *n*th term.

1st	2nd	3rd	4th	...	40th	...	*n*th
5,	9,	13,	17,	...	161,	...	

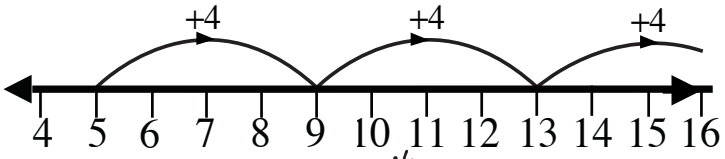
The value of *n* shows which term to look at.
For $n = 40$ look at the 40^{th} term in the sequence.

The coefficient of *n* in an *n*th term rule is given by the gap between the terms.



n^{th} term

$4n$



$4n+1$

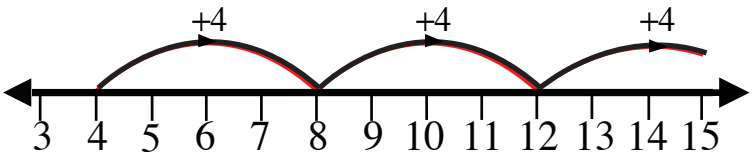
A 2.5 Finding the nth term for linear sequences I

Each term of a sequence is numbered in order.
We call an unknown term the *n*th term.

1st	2nd	3rd	4th	...	40th	...	*n*th
5,	9,	13,	17,	...	161,	...	

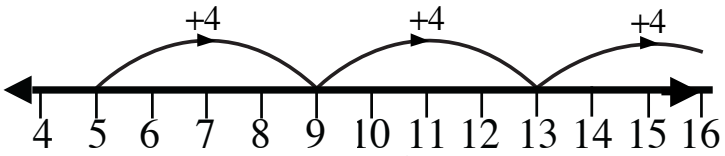
The value of *n* shows which term to look at.
For $n = 40$ look at the 40^{th} term in the sequence.

The coefficient of *n* in an *n*th term rule is given by the gap between the terms.



n^{th} term

$4n$

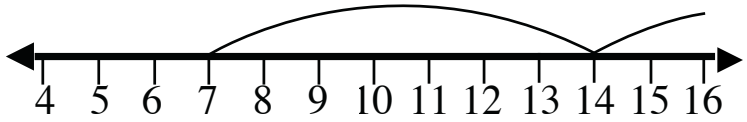


$4n+1$

A 2.5 Finding the nth term for linear sequences (answers) E

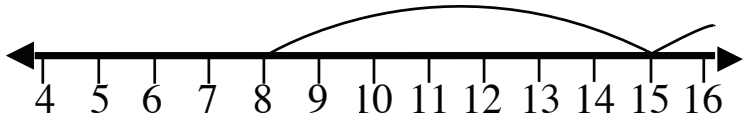
1 Find an expression for the nth term of each sequence.

a



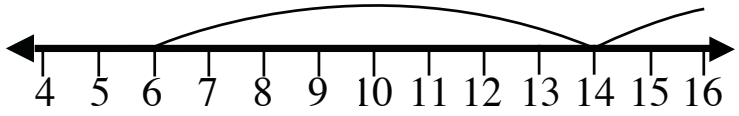
$n^{th}term = 7n$

b



$n^{th}term = 7n + 1$

c



$n^{th}term = 8n - 2$

2 Write down the expression for the nth term for each of the sequences below.

a 11, 22, 33, 44, 55,...
+11 +11 +11 +11

$n^{th}term = 11n$

b 10, 13, 16, 19, 22,...
+3 +3 +3 +3

$3n = 3, 6, 9, ...$

+7

$3n + 7 = 10, 13, 16, ...$

$n^{th}term = 3n + 7$

A 2.5 Finding the nth term for linear sequences

Each term of a sequence is numbered in order.
We call an unknown term the n th term.

1st	2nd	3rd	4th	...	n^{th}
5,	9,	13,	17,	...	

The value of n shows which term to look at.

For $n = 40$ look at the 40^{th} term in the sequence.

...	34th	35th	40th	37th	...
...	153,	157,	161,	165,	...

1 **7 is the first term in the sequence below.**

$$7,\quad 9,\quad 11,\quad 13,\quad \mathbf{15},\quad \ldots$$

What is the value of n for the highlighted term?

1 **7 is the first term in the sequence below.**

$$7, \quad 9, \quad 11, \quad 13, \quad \mathbf{15}, \quad \ldots$$

What is the value of n for the highlighted term?

Answer: $n = 5$

2 **15 is the** seventh **term for the sequence below.**

... 15, 18, **21,** 24, 27, ...

What is the value of n for the highlighted term?

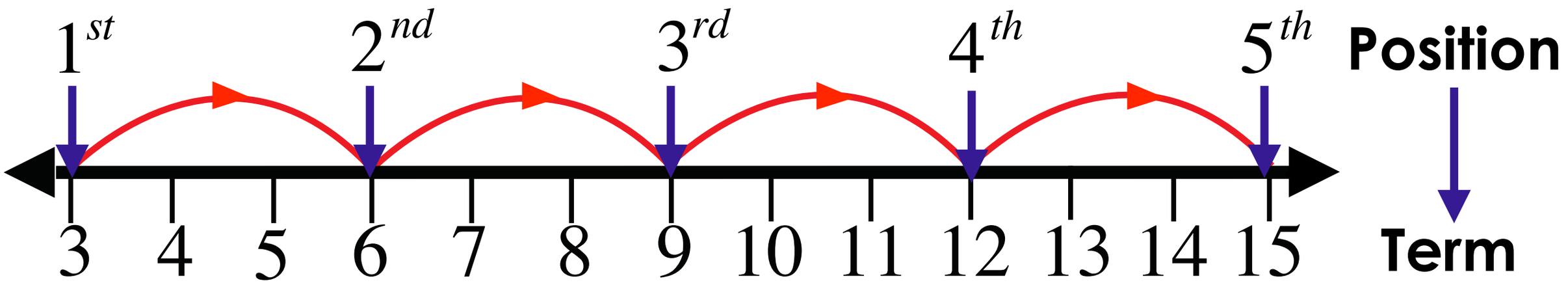
2 15 is the seventh term for the sequence below.

$$\ldots 15, \quad 18, \quad \boxed{21,} \quad 24, \quad 27, \ldots$$

What is the value of n for the highlighted term?

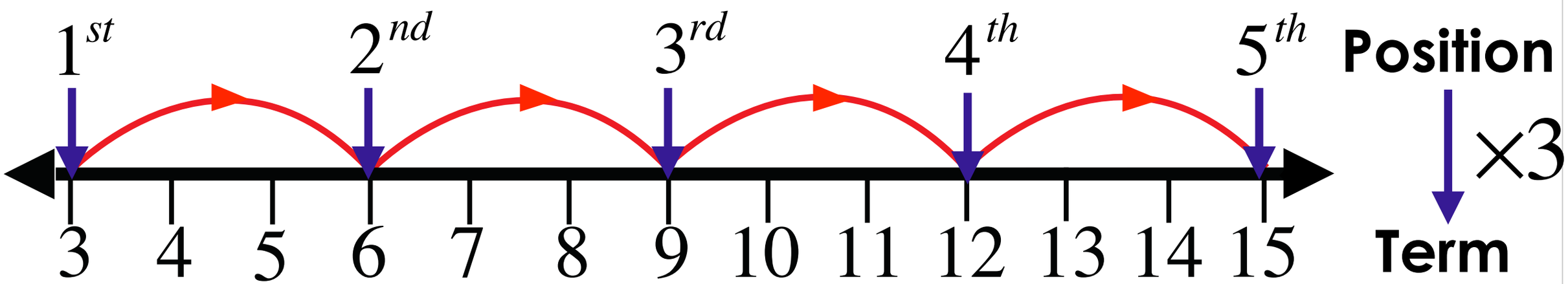
Answer: $n = 9$

3 The diagram shows positions mapped to terms.



Write down the operation that maps positions to terms.

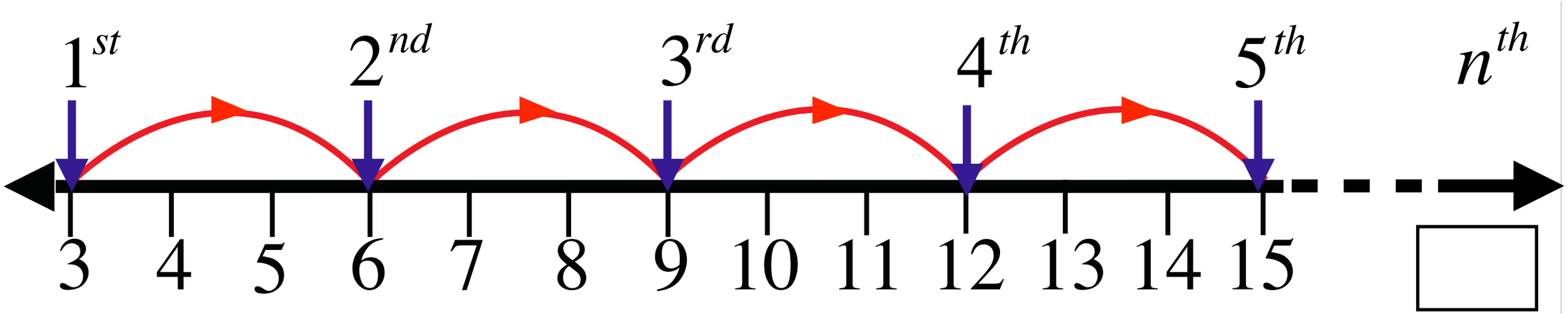
3 The diagram shows positions mapped to terms.



Write down the operation that maps positions to terms.

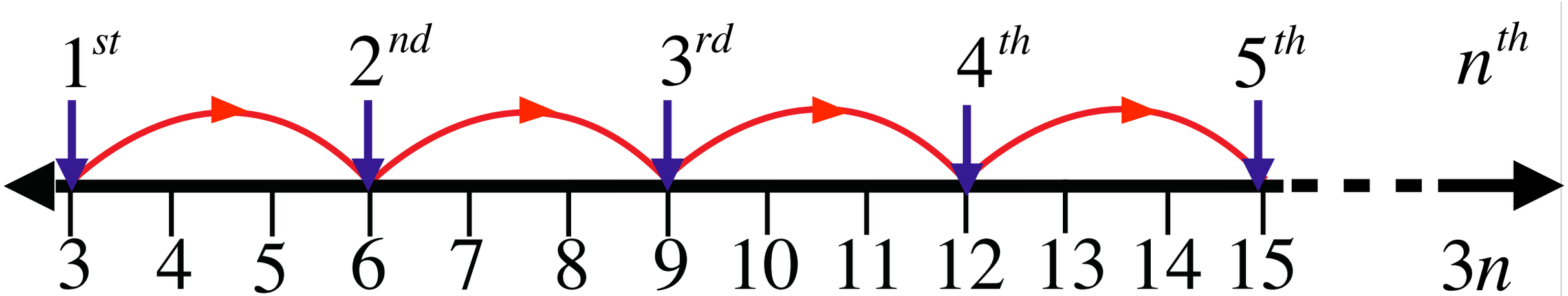
Answer: ×3

4 The diagram shows positions mapped to terms.



Fill in the box to show what n is mapped onto.

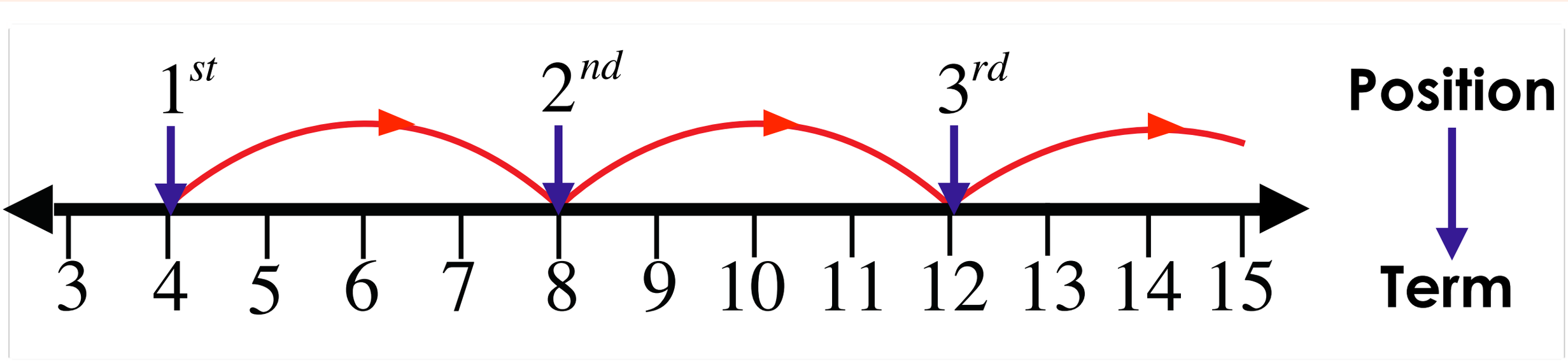
4 The diagram shows positions mapped to terms.



Fill in the box to show what n is mapped onto.

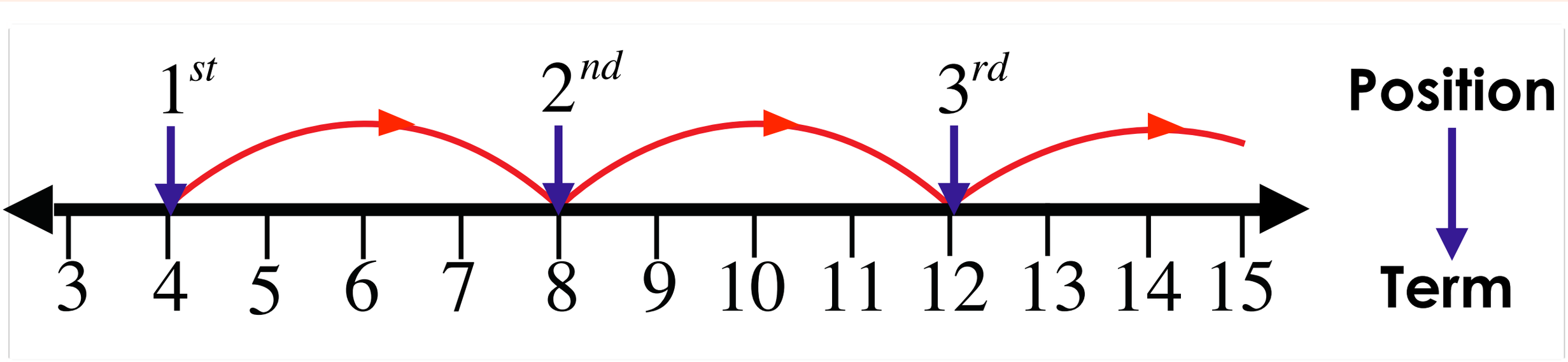
Answer: $n^{th}\,term = 3n$

5 The diagram shows positions mapped to terms.



Write down the operation that maps positions to terms.

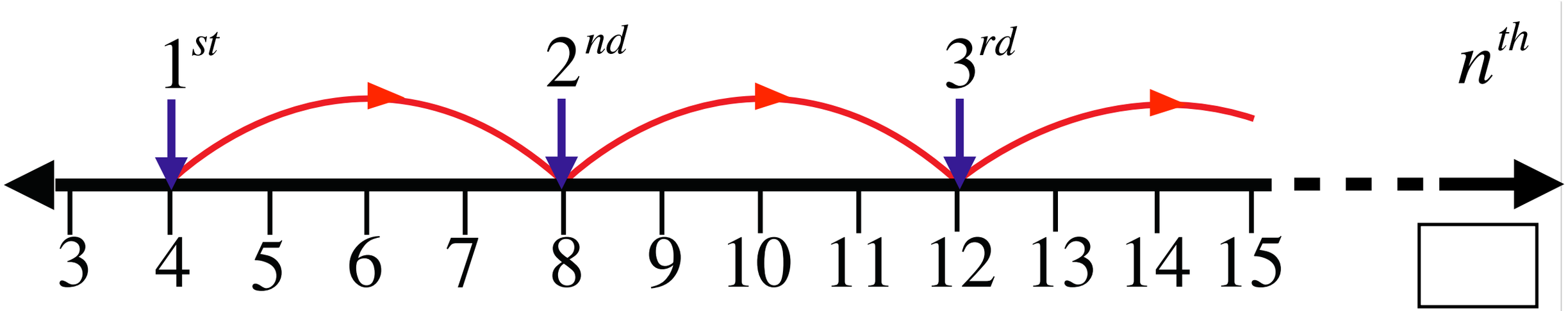
5 The diagram shows positions mapped to terms.



Write down the operation that maps positions to terms.

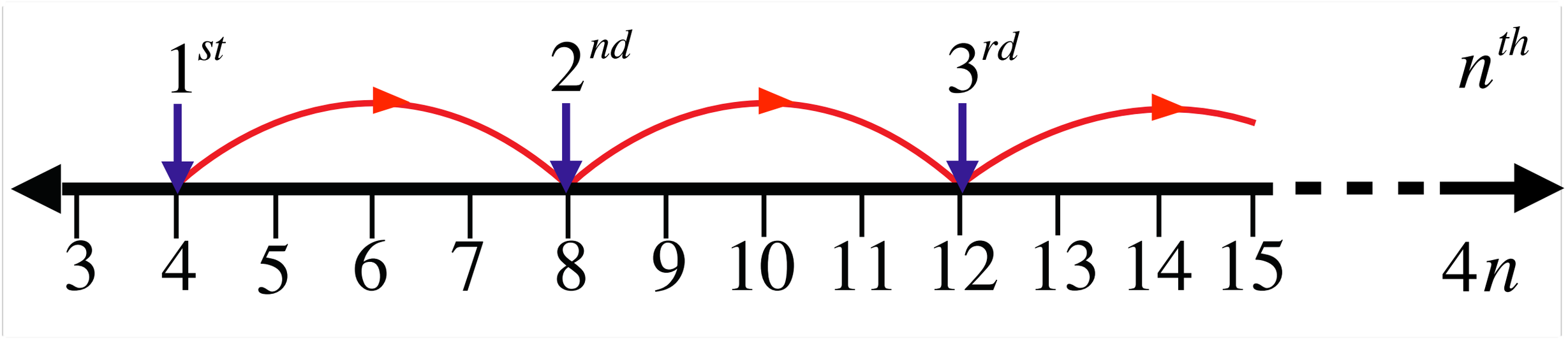
Answer: ×4

6 The diagram shows positions mapped to terms.



Fill in the box to show what n is mapped onto.

6 The diagram shows positions mapped to terms.

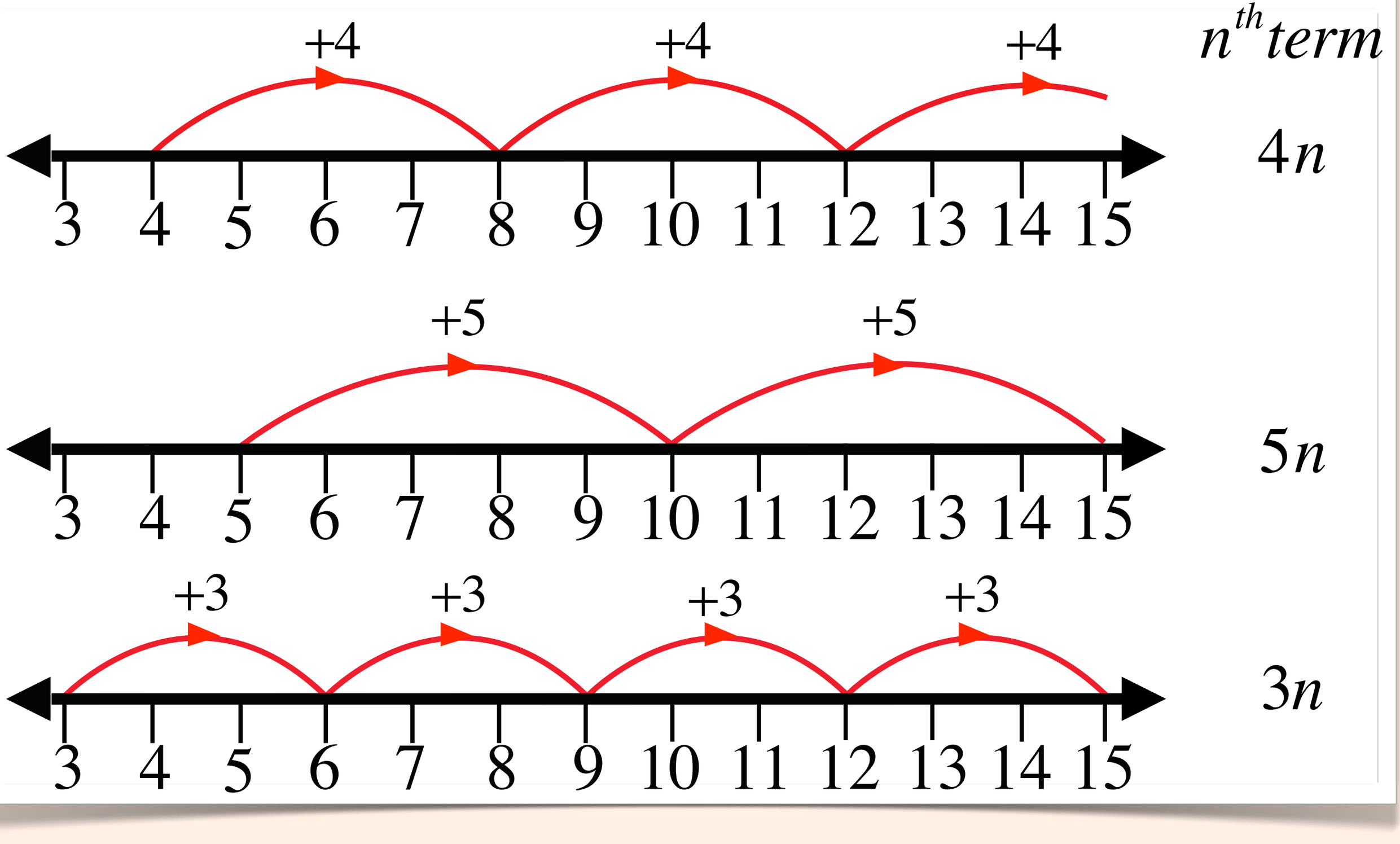


Fill in the box to show what n is mapped onto.

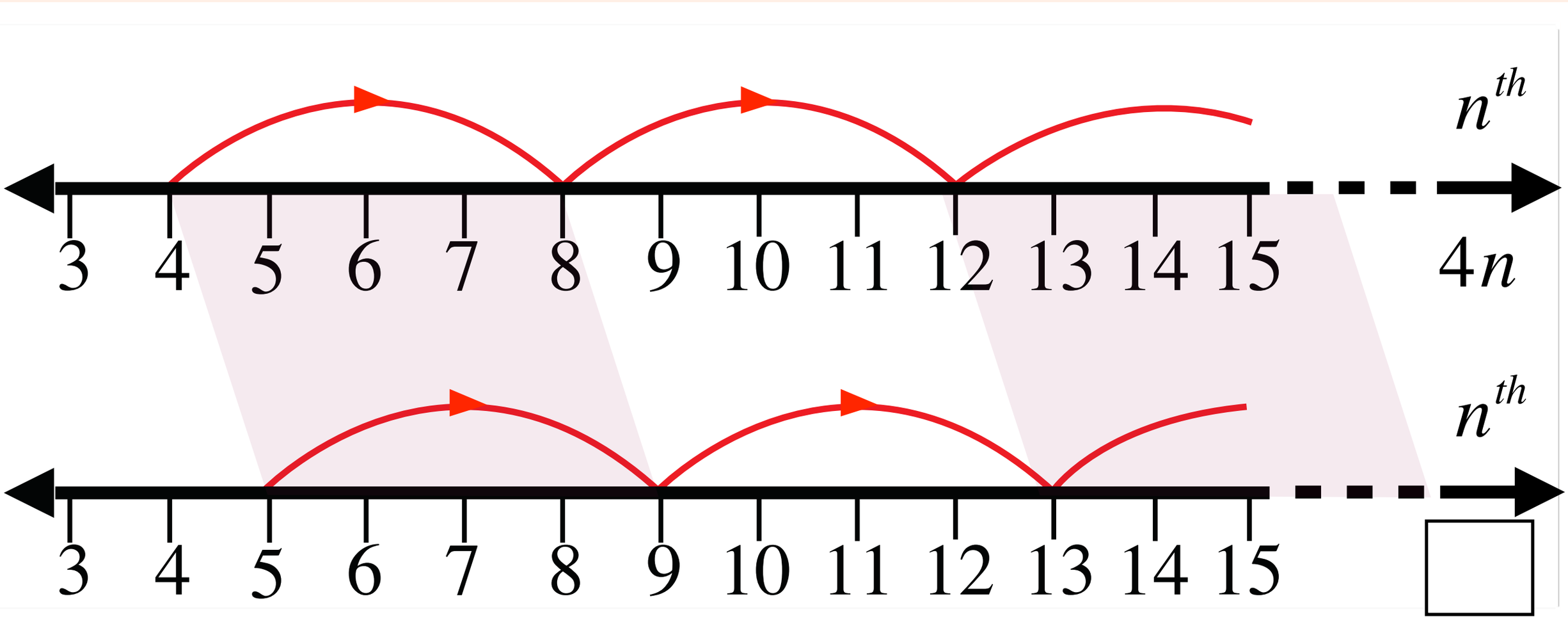
Answer: $n^{th}term = 4n$

A 2.5 Finding the nth term for linear sequences

The coefficient of *n* in an *n*th term rule is given by the gap between terms.



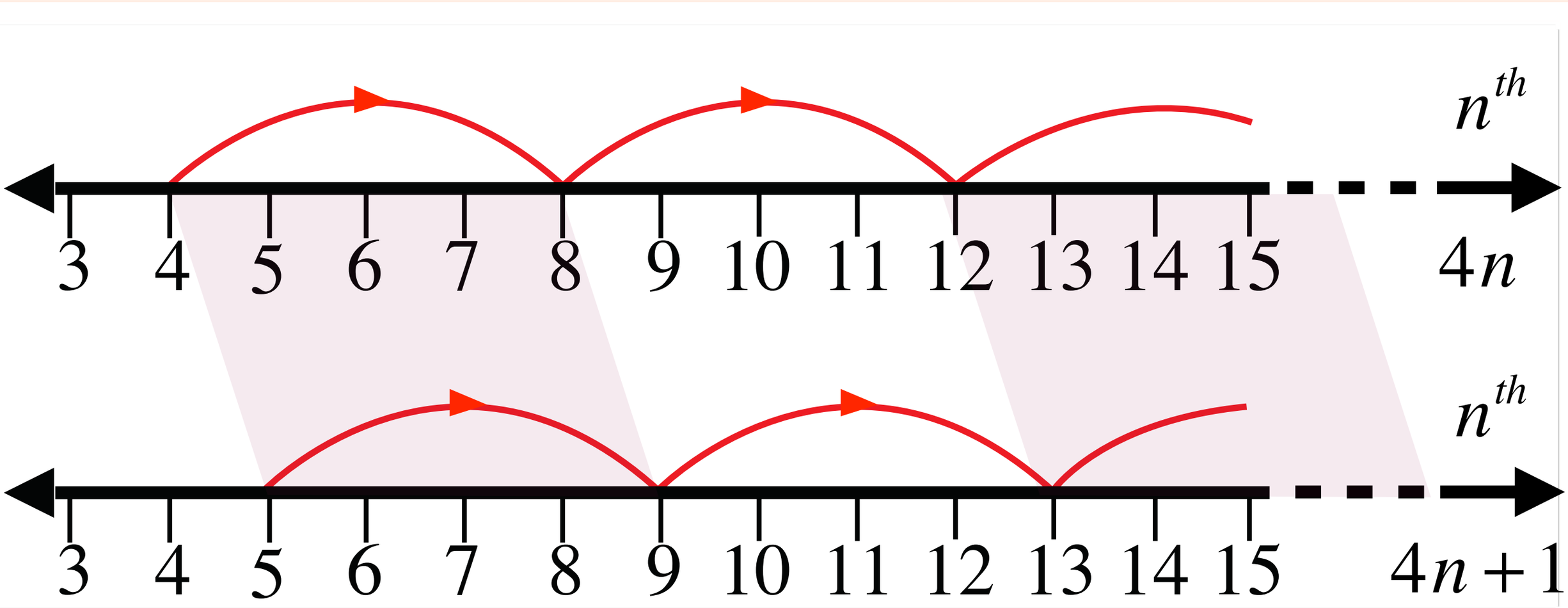
7 **The first diagram shows the sequence with equation** $n^{th}term = 4n$.



Fill in the box for the second diagram.

$$n^{th}term = 4n\square$$

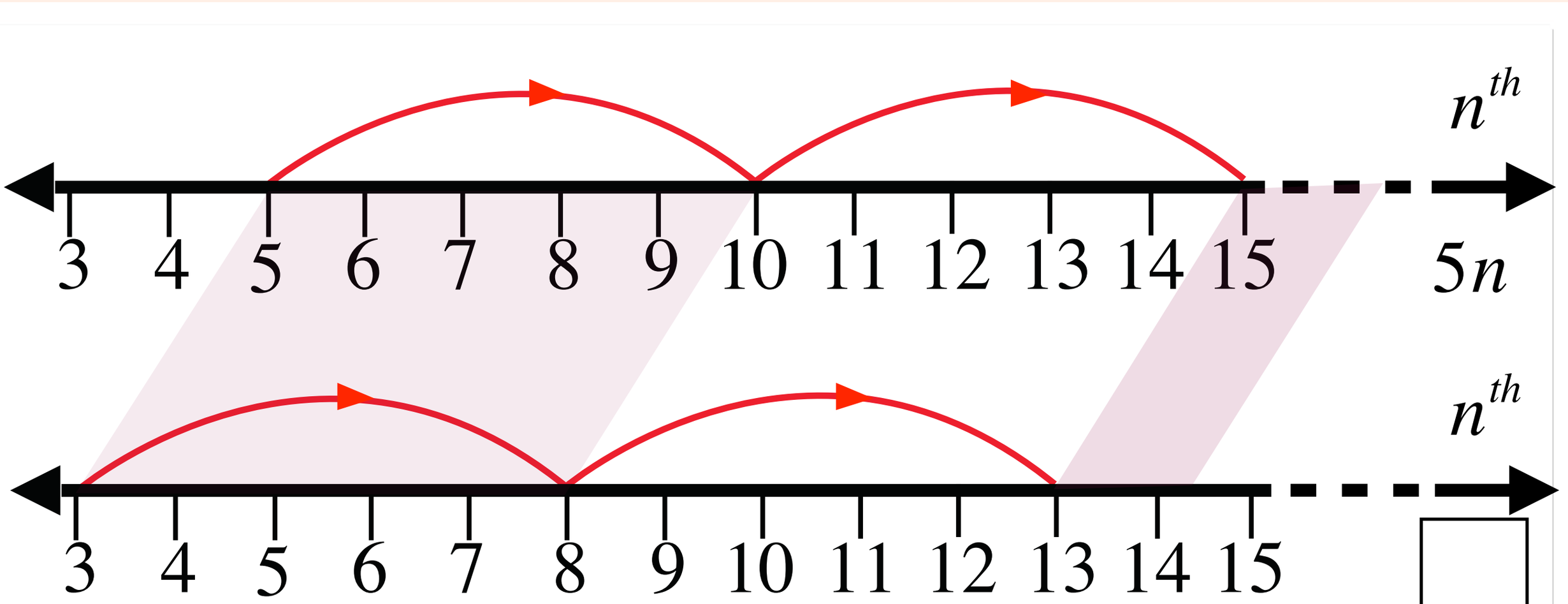
7 **The first diagram shows the sequence with equation** $n^{th}term = 4n$.



Fill in the box for the second diagram.

Answer: $n^{th}term = 4n + 1$

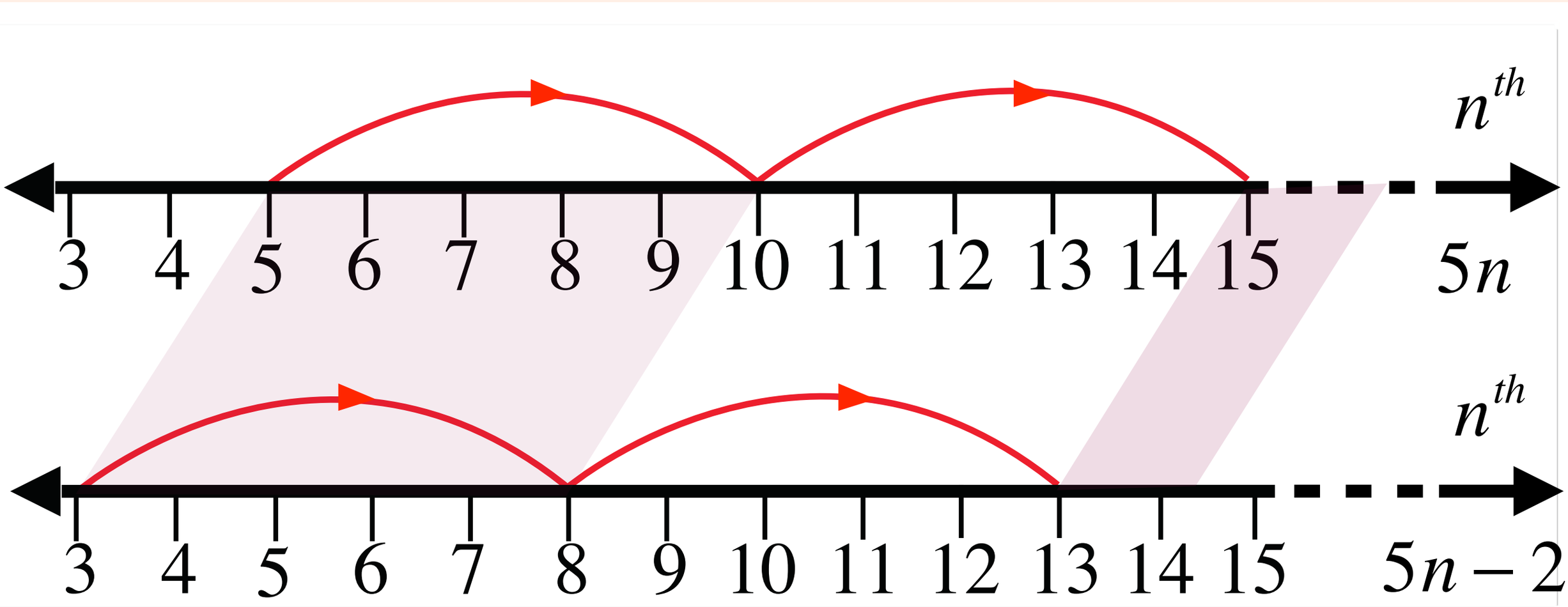
8 **The first diagram shows the sequence with equation** $n^{th}term = 5n$.



Fill in the box for the second diagram.

$$n^{th}term = 5n\square$$

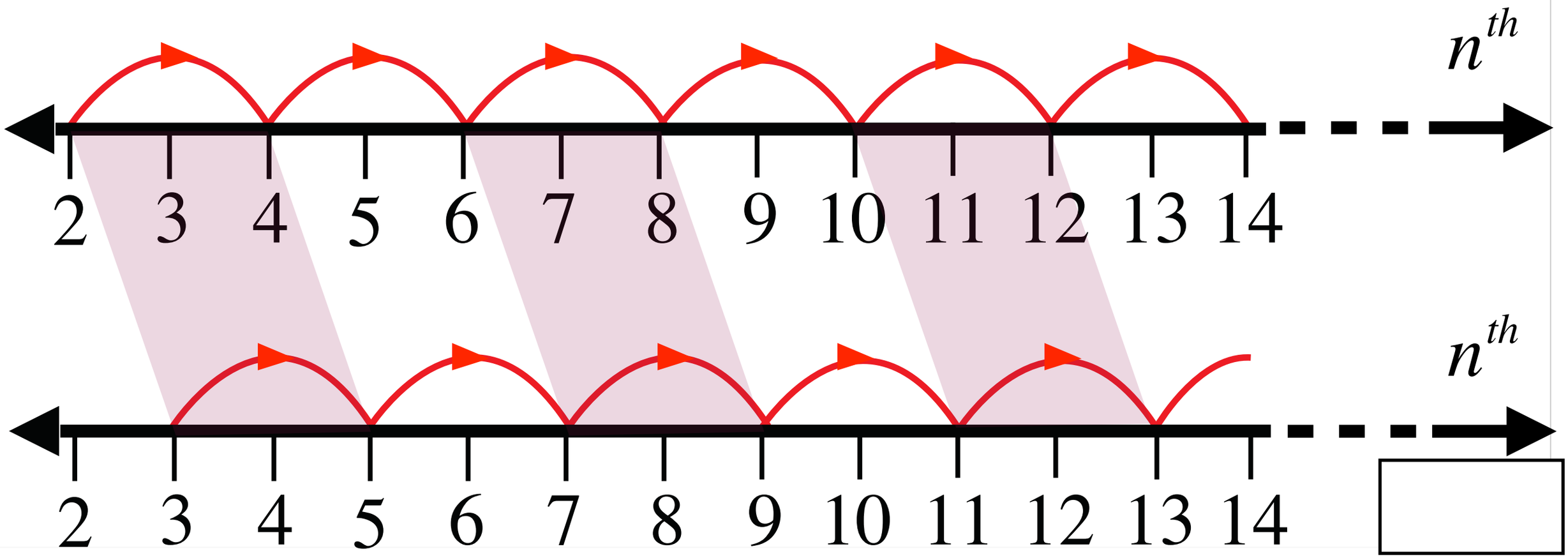
8 **The first diagram shows the sequence with equation** $n^{th}term = 5n$.



Fill in the box for the second diagram.

Answer: $n^{th}term = 5n - 2$

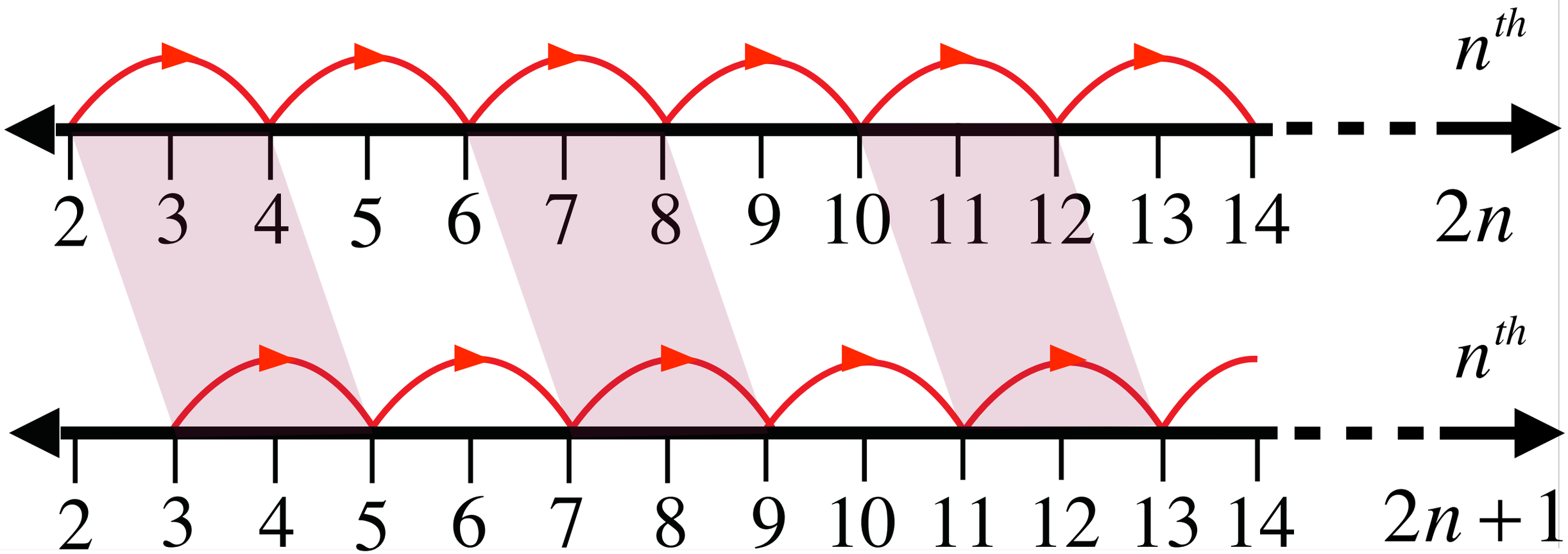
9 Look at the diagrams below.



Fill in the box for the second diagram.

$$n^{th}\,term = \square$$

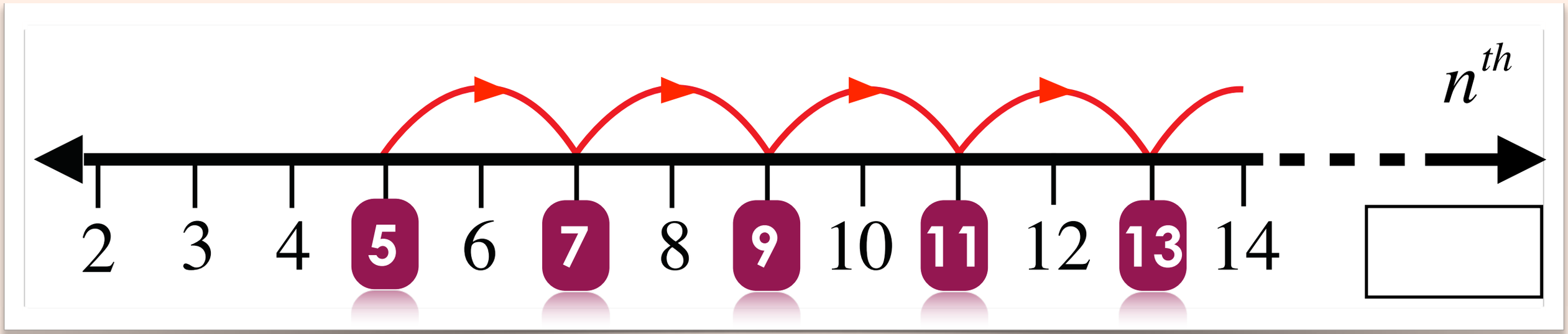
9 Look at the diagrams below.



Fill in the box for the second diagram.

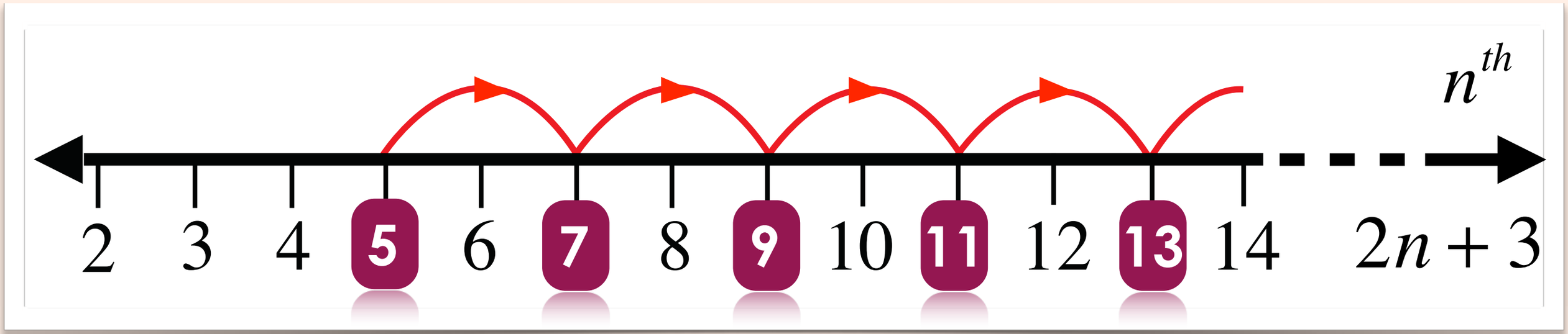
Answer: $n^{th}\,term = 2n+1$

10 **Fill in the box for the sequence below.**



$n^{th}\ term = \square$

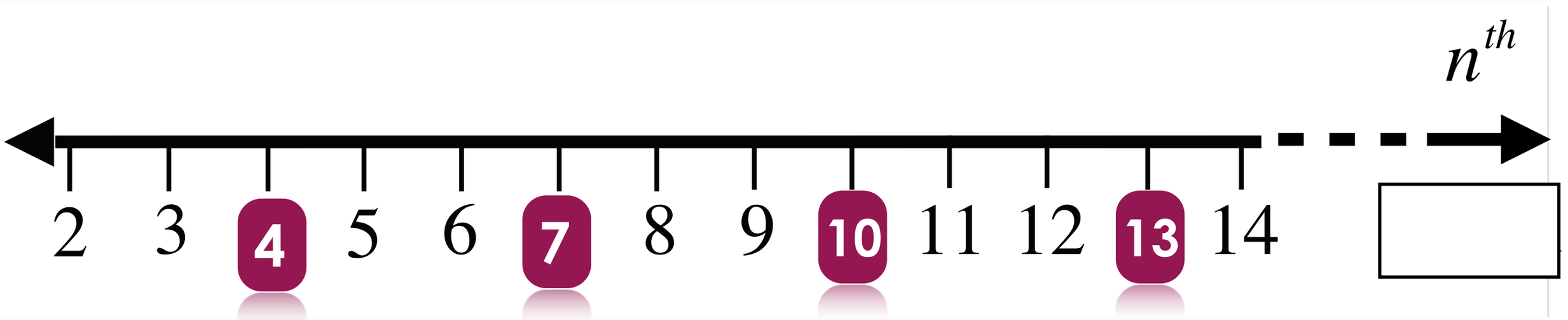
10 **Fill in the box for the sequence below.**



$$n^{th}\,term = 2n + 3$$

Answer: $n^{th}\,term = 2n + 3$

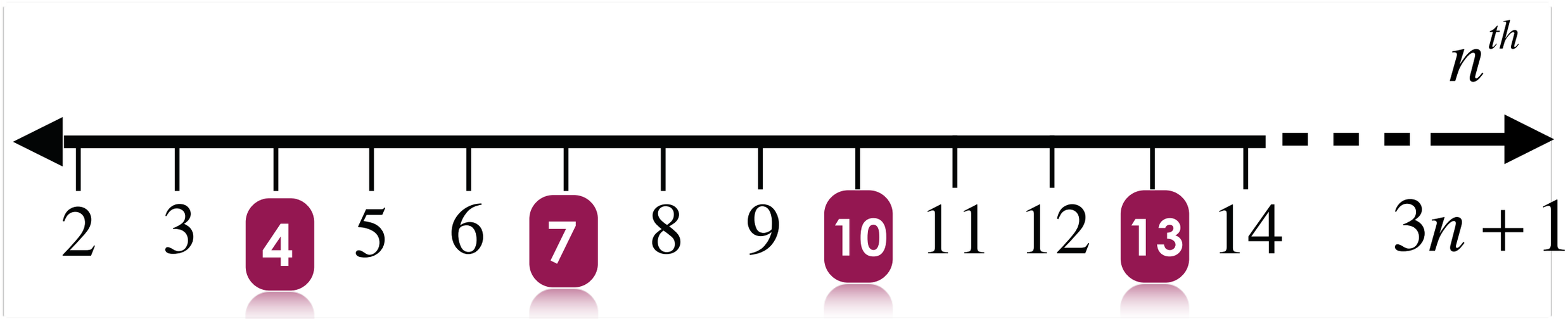
11 **The terms of a sequence are highlighted below.**



Write the nth term rule in the box.

$n^{th}\,term =$ ☐

11 The terms of a sequence are highlighted below.

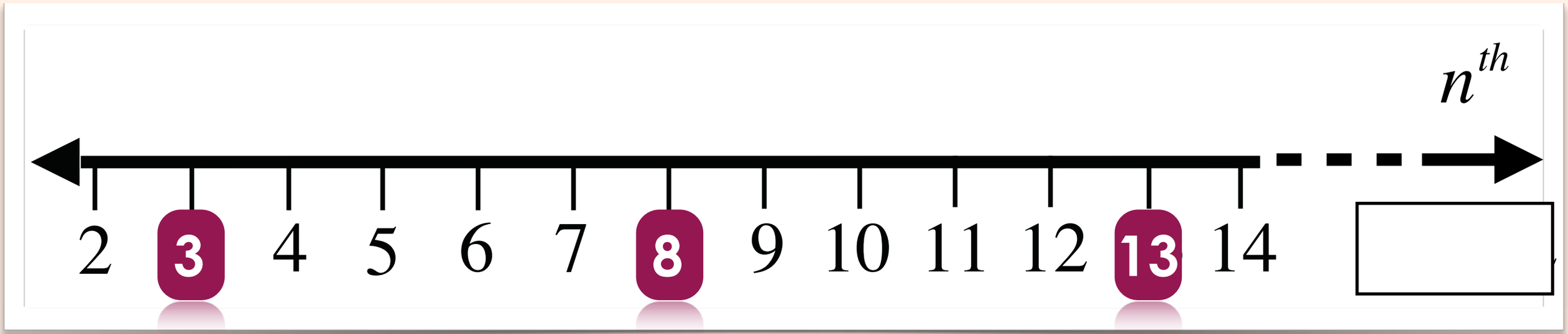


Write the nth term rule in the box.

$$n^{th}\,term = 3n + 1$$

Answer: $n^{th}\,term = 3n + 1$

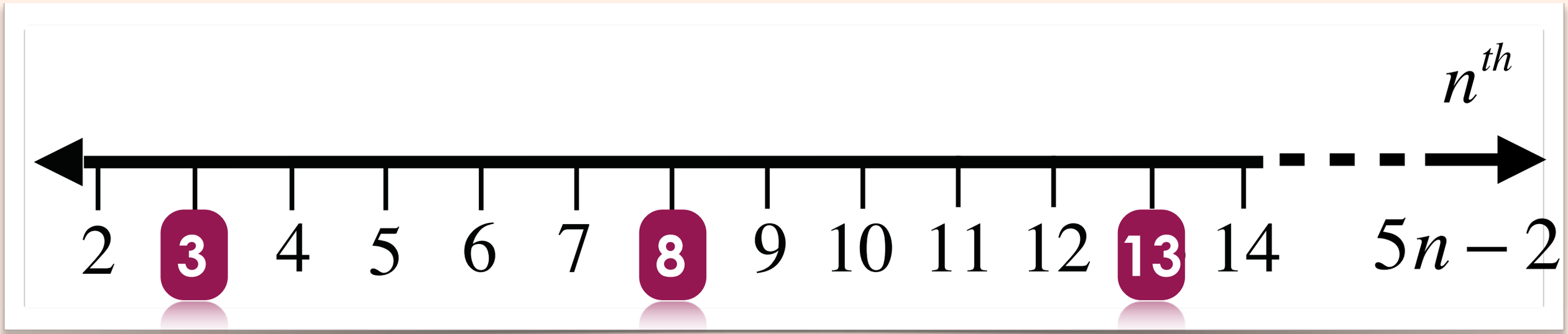
12 **The terms of a sequence are highlighted below.**



Write the nth term rule in the box.

$n^{th}\,term =$ ☐

12 The terms of a sequence are highlighted below.



Write the nth term rule in the box.

$$n^{th}\,term = 5n - 2$$

Answer: $n^{th}\,term = 5n - 2$

13 Write the nth term rule for the sequence below.

$$4, \quad 7, \quad 10, \quad 13, \ldots$$

$$n^{th}\,term = \square$$

13 Write the nth term rule for the sequence below.

$$4, \quad 7, \quad 10, \quad 13, \ldots$$

$$n^{th}term = 3n + 1$$

Answer: $n^{th}term = 3n + 1$

14 Write the nth term rule for the sequence below.

$$2, \quad 8, \quad 14, \quad 20, \ldots$$

$n^{th}\,term =$ ☐

14 Write the nth term rule for the sequence below.

$$2, \quad 8, \quad 14, \quad 20, \ldots$$

$$n^{th}term = 6n - 4$$

Answer: $n^{th}term = 6n - 4$

15 Write the nth term rule for the sequence below.

$$8, \quad 12, \quad 16, \quad 20, \ldots$$

$n^{th}\,term =$ ☐

15 **Write the nth term rule for the sequence below.**

$$8, \quad 12, \quad 16, \quad 20, \ldots$$

$$n^{th}term = 4n + 4$$

Answer: $n^{th}term = 4n + 4$