

n^{th} term rules

1. Complete the table below:

n^{th} term	First 6 terms	1000 th term	Term-to-Term Rule
$T(n) = 2n$		$T(1000) =$	
$T(n) = n + 10$		$T(1000) =$	
$T(n) = -10n$		$T(1000) =$	
$T(n) = 3n + 1$		$T(1000) =$	
$T(n) = n^2$		$T(1000) =$	

2. The first four sequences are called 'linear sequences'. What do they all have in common?

3. How does the term-to-term rule relate to the n^{th} term rule for linear sequences?

4. What would you expect the term-to-term rule to be for $T(n) = 6n + 13$?

Term-to-Term Rule:

5. Give an example of the n^{th} term rule for a sequence that goes up by 5 every time.

$$T(n) =$$

6. Give an example of the n^{th} term rule for a *different* sequence that goes up by 5 every time.

$$T(n) =$$

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$$T(n) =$$

n^{th} term rules SOLUTIONS

1. Complete the table below:

n^{th} term	First 6 terms	1000 th term	Term-to-Term Rule
$T(n) = 2n$	2, 4, 6, 8, 10, 12	$T(1000) = 2000$	+2
$T(n) = n + 10$	11, 12, 13, 14, 15, 16	$T(1000) = 1010$	+1
$T(n) = -10n$	-10, -20, -30, -40, -50, -60	$T(1000) = 10000$	-10
$T(n) = 3n + 1$	4, 10, 13, 16, 19, 22	$T(1000) = 3001$	+3
$T(n) = n^2$	1, 4, 9, 16, 25, 36	$T(1000) = 1000000$	(+ the n^{th} odd number to get to the n^{th} term)

2. The first four sequences are called 'linear sequences'. What do they all have in common?

The term-to-term rule is always + or - a number.

3. How does the term-to-term rule relate to the n^{th} term rule for linear sequences?

The number in front of n in the n^{th} term rule is the same as the number added for the term-to-term rule.

4. What would you expect the term-to-term rule to be for $T(n) = 6n + 13$?

Term-to-Term Rule: +6

5. Give an example of the n^{th} term rule for a sequence that goes up by 5 every time.

$T(n) = 5n + \text{anything}$

6. Give an example of the n^{th} term rule for a *different* sequence that goes up by 5 every time.

$T(n) = 5n + \text{anything else}$