The nth term of a quadratic sequence

Exit ticket ANSWERS Name _____

1. Find the second difference of 3, 8, 17, 30, 47, …

   4

2. Find the nth term of 7, 13, 23, 37, 55, …

   $2n^2 + 5$

3. Find the nth term of 7, 16, 27, 40, 55, …

   $n^2 + 6n$

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NEXT LESSON

1 **Find the second difference of 3, 8, 17, 30, 47, …**

4

TESTS Finding the second difference

LOOK FOR

5, 9, 13, 17 the first differences: take their differences too

2 halved already: the second difference is 4, before any halving

FIX IT

Find the second difference of 4, 7, 13, 22, 34. *3*

2 **Find the nth term of 7, 13, 23, 37, 55, …**

$2n^2 + 5$

TESTS The nth term when what is left is a constant

LOOK FOR

$4n^2 + 3$ the second difference 4 not halved: 4 ÷ 2 = 2

$n^2 + 6$ the number in front of n^2 is half the second difference, not always 1

FIX IT

Find the nth term of 5, 17, 37, 65, 101. *$4n^2 + 1$*

3 **Find the nth term of 7, 16, 27, 40, 55, …**

$n^2 + 6n$

TESTS The nth term when what is left is a linear sequence

LOOK FOR

$n^2 + 6$ what is left is 6, 12, 18, 24, 30: it goes up, so find its nth term

$6n$ the n^2 part is left off

FIX IT

Find the nth term of 4, 9, 16, 25, 36. *$n^2 + 2n + 1$*