Nth term worksheet with answers

FreeReport a problemThis resource is designed for teachers in the UK. View the U.S. version. Linear sequences (or arithmetic advances) are sequences that increase or descend by the same amount between each term. Want a way to mathematically express any term? This can be done using the term n^{th} formula. This is a rule that returns the value of any term in the row in which a and b are numbers to be determined. Example: Find the term n^{th} for the following sequence, 3, \, 7, \,11, \,15, \,19, \, ... Step 1: Find Common Difference (a) The common difference is the amount that the array increases (or decreases) each time. a=4, because a is always the difference between each term. Step 2: Determine whether you need to add or remove something (b) Consider the sequence that occurs by putting n=1, 2, 3, 4, 5 to 4n to work with B: 4, 8, 12, 16, 20 What is the difference between these terms and our actual array? They're all too big by 1:00. I mean, to do our original show, we have to take it from 4n to 1. Step 3: Type the formula correctly (an+b) so that our term formula n^{th} is 4n-1. Another sequence type is a geometric array or geometric progression. In a geometric order, you multiply each term by a common ratio to reach the next period. For example, to move on to the next period, the previous term is a geometric progression that you must multiply by the common ratio. Therefore, to find the next two terms of this array, we need to multiply the previous term by 3, so we may be asked about geometric arrays that contain 40.5\times 3=121.5 and 121.5\times 3 =364.5 Wallds. For example, it is a geometric progression in which the common ratio is not a rational number. The method of finding the next two terms of this array is the same as the previous one, multiplying the previous term by \sqrt{3}, so 9\sqrt{3}\times 3=27 and 27\times \sqrt{3} = 27\sqrt{3} There are other types of arrays that you should be familiar with: Triangle Numbers Triangle numbers are numbers that can be represented as dots. the term n^{th} is \dfrac{n(n+1)}{2}, 1, 3, 6, 10, 15, 21, ... Square Numbers These arrays are made up of square numbers, so the term n^{th} is n^2, 1, 4, 9, 16, 25, 36, 49, ... Cubic Numbers These sequences are made up of cubic numbers, so the term n^{th} is n^3, 1, 8, 27, 64, 125, 216, ... The first few terms of fibonacci numbers fibonacci sequence are: 1, 1, 2, 3, 5, 8, 13, 21, ... This is a famous sequence you need to recognize. The rule is added together in order to get the next period from the previous 2 periods. Find the term formulas n^{th} for array -2, 5, 12, 19, 26. [2 marks] The first step is to find the common difference between each term. So we can write the term n^{th}, consider the sequence that consists of putting 7n+b b to n=1, 2, 3, 4, 5 to u_n=7n: 7, 14, 21, 28, 35 The difference between these numbers and our array 9 from each period. Thus, our term n^{th} is 7n-9. The first five episodes of an array are : -3, 1, 5, 9, 13 Determine whether 1143 is part of that series. [3 marks] Step 1: First, the term n^{th} of the queue gives this 4n-7 as before. Step 2: We then need to write the term n^{th} as an euqation equal to 1143 and resolve it for n if n resolves an integer, 1143 is part of the queue. \begin{aligned} 4n-7&=1143 \\ 4n & = 1150 \\ n&= 287.5\end{aligned} 287.5 is not an opponent, 1143 should not be part of the queue. The sum of two consecutive terms in an array given by the term N^{th} is 3n+8 109. Find the values for these two terms. [4 marks] In this case, we need to create an equation first, set the first term to n, the second term to n+1, so that \begin{aligned} 3n+8+3(n+1)+8 & = 109 \\ 3n + 8 + 3n + 3n + 3 + 8 & = 109 \\ 6n +19 &= 109 \\ 6n &= 90 \\ n &=15 \15 \aligned} 15 and 16. , 3(15)+8 = 53 and 3(16) +8 = 56 a) We will change n=12 to the formula given to find the term 12th of this array. 4(12)+1=49 That is, the term 12th 49 b) Each term in this array is created when the integer value of n is 4n+1. , n=\dfrac{77-1}{4}=19 Is therefore the term 19th in 77 arrays. a) We will replace the formula given to create the first 5 terms of this series n=1, 2, 3, 4, 5. \begin{aligned}1 &=5(1)-4 =1 \\ 2 &=5(2)-4 =6 \\ 3 & =5(3)-4=11 \\ 4 &=5(4)-4=16 \\ 5 &=5(5)-4=21 \end{aligned So, top 5 terms 1, 6, 11, 16, and 21 b) In this order, each term is created when the integer value of n is changed to 5n-4. If we set 108 to equal to 5n-4, we can determine if it's part of the array. If n is an innum, it is part of the sequence, so 5n-4=108 is required in cases where 108 is not a term in this order, since there is no 22.4^{th} position in the array, n=\dfrac{112}{5}=22.4 after the subject creates the subject by adding 4. We are told that there should be an arithmetic progression and therefore the n ^{th} formula: an+b. To find one, we need to examine the difference between each term, which is 5, hence a=5. Then, to find b, take the sequence created by 5n: 5,\,\,10,\,\,\,\,\,\,20,\,\,25 Each period is greater than the corresponding terms in the original array with 8 each period. So, to get to the original sequence, we're going to have to take eight out of every term in this series. In other words, I know how to find the term n^{th} term formula 5n-8 Related Topics: More Math Worksheet Target: Pattern of an array and the term nth for that array. Fill in all the blanks and press Check to check your responses. If an answer gives you a problem, use the Tip button to get a free letter. You can also click the [?] button. To get a clue. Keep in mind that if you ask for tips or tips, you'll lose points! Try the free Mathway calculator and problem solver below to practice various math topics. Try the examples provided, or type your own problem and check your response step-by-step. We look forward to your feedback, comments and questions about this site or page. Please send your feedback or questions via our Feedback page. September 5, 2019 corbettmaths Find the nth period rule for each of the following linear sequences. Give your answers in the form of a + b. b.