

Name: _____

Determining Terms in a Sequence

So far, you have been given sequences as a list of numbers and have been asked to determine missing terms using that list of numbers. This is not the only way that sequences can be represented, however. A sequence can also be represented as an equation ($a_n = \dots$), where n represents the term number (for the 1st term, $n = 1$; for the 2nd term, $n = 2$; and so on). To determine the value of a term in an equation like this, simply plug in the term number, n , and solve.

<p>EXAMPLE Determine the fifth term in the sequence. $a_n = n^3 + 11$</p> <p>For the fifth term, $n = 5$. Plug it in. $a_5 = 5^3 + 11 = 125 + 11 = \boxed{136}$</p>	<p>1. Determine the ninth term in the sequence. $a_n = 8n - 19$</p>	<p>2. Determine the third term in the sequence. $a_n = 6^n + 8$</p>
<p>3. Determine the fourth term in the sequence. $a_n = 9n + 22$</p>	<p>4. Determine the seventh term in the sequence. $a_n = n^2 + 18$</p>	<p>5. Determine the tenth term in the sequence. $a_n = -3n - 5$</p>
<p>6. Determine the first term in the sequence. $a_n = 47n - 3$</p>	<p>7. Determine the eighth term in the sequence. $a_n = 6n - 2$</p>	<p>8. Determine the third term in the sequence. $a_n = n^2 + n$</p>
<p>9. Determine the sixth term in the sequence. $a_n = 5n^2 - 2$</p>	<p>10. Determine the fifth term in the sequence. $a_n = -3n^2 + n$</p>	<p>11. Determine the ninth term in the sequence. $a_n = 4n - 6$</p>
<p>12. Determine the third term in the sequence. $a_n = \frac{n}{6} + 4$</p>	<p>13. Determine the second term in the sequence. $a_n = \frac{1}{5-n}$</p>	<p>14. Determine the fourth term in the sequence. $a_n = \frac{3}{n} + \frac{n}{5}$</p>

Finite Series

A series is the sum of a sequence. There are infinite (sequences that do not end) and finite (sequences that have a start and end) series. To find the sum in a finite series, you need to determine the starting and ending values, and plug in every integer value from start to end. Add that up, and you have determined your finite series. The symbol that tells you that you're looking for the sum looks like this:

$$\sum_{\text{start}}^{\text{end}} \text{sequence equation}$$

<p>EXAMPLE</p> $\sum_{a=4}^7 4a$ <p><i>Plug in every integer between and including 4 & 7, and add.</i></p> $\sum_{a=4}^7 4a = 4(4) + 4(5) + 4(6) + 4(7)$ $= 16 + 20 + 24 + 28 = \boxed{88}$	<p>15.</p> $\sum_{m=0}^4 -7m$	<p>16.</p> $\sum_{h=16}^{18} h - 7$
<p>17.</p> $\sum_{b=3}^9 6a + 1$	<p>18.</p> $\sum_{k=7}^{11} 3k - 2$	<p>19.</p> $\sum_{r=5}^6 7r + 10$
<p>20.</p> $\sum_{q=5}^8 q^2 + 6$	<p>21.</p> $\sum_{d=8}^{10} 5d^2 - 7$	<p>22.</p> $\sum_{g=9}^{12} g^2 - g$
<p>23.</p> $\sum_{p=1}^5 6p + 10$	<p>24.</p> $\sum_{x=2}^6 2^x$	<p>25.</p> $\sum_{c=3}^5 3^c + 13$
<p>26.</p> $\sum_{t=2}^4 \frac{t}{3}$	<p>27.</p> $\sum_{f=3}^7 \frac{2}{t}$	<p>28.</p> $\sum_{y=1}^4 \frac{1}{3^{-y}}$