

	Arithmetic Sequence	Geometric Sequence
Defining Characteristic	Each term is a constant amount more/less than the previous term	Each term is a constant multiple more/less than the previous term
General Term	$t_n = a + (n-1)d$	$t_n = ar^{n-1}$
“Determine the n^{th} term of the sequence”	Fill in a , d and the n that you're given. Solve for t .	Fill in a , r and the n that you're given. Solve for t .
“Determine the number of terms in the sequence {sequence given}”	Fill in a , d and make t the last number of the sequence. Solve for n .	Fill in a , r and make t the last number of the sequence. Solve for n .
“Determine an equation for t_n in a sequence with $t_{12} = 45$ and $t_{16} = 101$”	<p>For each pair, fill in t and n into the general term above. You'll get two equations:</p> $45 = a + (12-1)d$ $101 = a + (16-1)d$ <p>Subtract them from each other.</p> $45 = a + 11d$ $\underline{101 = a + 15d}$ $-56 = -4d$ <p>Solve for d:</p> $d = -56 / -4 = 14$ <p>And plug that into one of the original equations to find a:</p> $45 = a + 11(14)$ $45 = a + 154$ $a = 45 - 154$ $a = -109$ <p>Finally, fill a and d into the general term:</p> $t_n = -109 + (n-1)(14)$	<p>For each pair, fill in t and n into the general term above. You'll get two equations:</p> $45 = ar^{12-1}$ $101 = ar^{16-1}$ <p>Divide them into each other.</p> $\frac{45 = ar^{11}}{101 = ar^{15}}$ $0.4455 = r^{-4}$ <p>Solve for r:</p> $r = (0.4455)^{-1/4} = 1.224$ <p>And plug that into one of the original equations to find a:</p> $45 = a(1.224)^{11}$ $45 = a(9.237)$ $a = 45 / 9.237 = 4.872$ <p>Finally, fill a and d into the general term:</p> $t_n = 4.872(1.224)^{n-1}$

Homework Questions

1. Determine the 17th term of the sequence 29, 24, 19, 14, ...
2. Determine the 19th term of the sequence 0.01, 0.02, 0.04, 0.08, ...
3. Determine the number of terms in the sequence 1024, 512, 256, ..., 0.0625
4. Determine the number of terms in the sequence -8, -6, -4, -2, ..., 122
5. Determine an equation for t_n in a arithmetic sequence with $t_4 = 10$ and $t_8 = 42$
6. Determine an equation for t_n in a geometric sequence with $t_6 = 7.29$ and $t_{11} = 1771.47$