

1. Find the explicit formula a_n given $a_1 = -15$ and $d = 7$.
2. Find the n th term formula for $-5, 6, 17, \dots$
3. Write the explicit and recursive formulas for $\frac{1}{2}, -\frac{1}{4}, \frac{1}{8}, -\frac{1}{16}, \dots$
4. Given the two terms in the arithmetic sequence, find the explicit formula.
 $a_{12} = 48$ and $a_{41} = 193$
5. Find a_{120} for $-11, -22, -33, \dots$
6. Write the following in Sigma Notation: $-5 + 13 + 31 + 49, \dots$
7. Write the following in Sigma Notation: $\frac{3}{5} + \frac{5}{9} + \frac{7}{13} + \frac{9}{17}, \dots$
8. Evaluate $\sum_{k=1}^4 2^{k+1} - 4k$
9. Find S_{82} for $-9 + 2 + 13 + 24 + \dots$
10. Evaluate $\sum_{k=1}^{46} -3k + 8$
11. Find n if $S_n = 300$ for the arithmetic sequence $3, 9, 15, 21, \dots$
12. Find S_6 for the following geometric sequence $a_n = \frac{1}{8}(-2)^{n-1}$. (Use the formula)
13. Find the infinite sum for $4 + 2 + 1 + \frac{1}{2} + \frac{1}{4} + \dots$
14. Expand and simplify the following expression: $(3x - 2y)^4$.
15. Expand and simplify the following expression: $(2 - 3i)^6$.
16. Find the 8th term of $(2x + y)^{11}$.
17. Determine the coefficient of the 6th term of $(2x - 3y)^{12}$. (you are expecting a big number)