

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, if possible, the infinite sum for  $4 + 2 + 1 + \frac{1}{2} + \frac{1}{4} + \dots$
14. Write sigma notation for  $4 - 2 + 1 - \frac{1}{2} + \frac{1}{4} + \dots$
15. Write sigma notation for  $\frac{1}{2} + 1 + \frac{7}{8} + \frac{11}{16} + \dots$
16. Find the partial sum for  $7 + 2 - 3 - 8 - \dots - 358$
17. Evaluate  $\sum_{k=1}^5 \frac{1}{4} \left(-\frac{2}{3}\right)^k$  (Use formula)