**Arithmetic Sequences and Series**

1. Use the formula $a+(n-1)d$ to find the $n^{th}$ term of the following sequences:

 a) 3 7 11 15 …

 b) 9 14 19 24 …

 c) 11 8 5 2 …

 d) 6 5 4 3 …

 e) 4 8 12 16 …

 f) -2 -6 -10 -14 …

2. Use the formula $\frac{n}{2}\left[2a+\left(n-1\right)d\right]$ to calculate the sum of the first 20 terms of the following sequences:

 a) 1 4 7 10 …

 b) 5 9 13 17 …

 c) -5 -7 -9 -11 …

 d) 6 8 10 12 …

3. The first term of an arithmetic series is 8 and the second term is 10. Find the sum of the first 100 terms.

4. The 4th term of an arithmetic series is 17. The 10th term of the same series is 35. Find the sum of the first 50 terms of this arithmetic series.

5. The 3rd term of an arithmetic series is 19. The sum of the first 10 terms of the series is 290. Find the 10th term of the arithmetic series.

6. An arithmetic series has first term $a$ and difference $d$. The sum of the first 29 terms is 1102.

 a) Show that $a+14d=38$

 b) The sum of the second term and the seventh term is 13. Find the value of $a$ and $d$.

7. The 11th term of an arithmetic series is 1. The sum of the first 10 terms is 120. Find the 4th term.

8. The $n^{th}$ term of an arithmetic sequence is $6+5n$. Find the sum of the first 20 terms.