Name: _____

Arithmetic Sequences and Series

Exercise 1: Find the explicit formula for each arithmetic sequence:

1) $d = 3$ and $a_{12} = 58$

2) $d = 2$ and $a_7 = 8$

3) $d = 7$ and $a_1 = -6$

4) $a_7 = 24$ and $a_{13} = 50$

5) $d = 4$ and $a_2 = 5$

6) $a_3 = 12$ and $a_6 = 34$

7) $d = 8$ and $a_1 = 6$

8) $a_2 = 8$ and $a_4 = 20$

9) $a_1 = 2$ and $a_2 = 8$

10) $a_6 = 0$ and $a_9 = -18$

Exercise 2: Find the indicated term for each arithmetic sequence.

1) $-1, -5, -9, -13, ..., a_{11}$

2) $a(r-1), ar, a(r+1), ..., a_9$

Exercise 3: A sequence is defined by $a_1 = 4$, $a_k = a_{k-1} + 2$, $k > 1$, $k \in \mathbb{N}$. Show that the sequence is arithmetic.

Exercise 4: How many terms are there in each sequence?

1) $12, 9, 6, ..., -30$

2) $x, x+2y, x+4y, ...x+18y$

Exercise 5: Evaluate

1) $\sum_{n=1}^{6}(3n-2)$

2) $\sum_{n=1}^{4}(8n+3)$

3) $\sum_{n=3}^{8}(n+1)$

4) $\sum_{n=7}^{11}\left(\frac{1}{2}n-9\right)$

5) $\sum_{n=9}^{14}(2n+13)$

6) $\sum_{n=0}^{5}(12n-15)$