

## Worksheet 1

I. Give the first four terms of each sequence:

1.  $t_1 = 5, t_{n+1} = t_n + 3$

2.  $t_1 = 10, t_n = t_{n-1} + n$

3.  $t_1 = 3, t_n = 2t_{n-1}$

4.  $t_1 = 4, t_{n+1} = 2t_n - 1$

II. Give the third, fourth, and fifth terms of each sequence:

5.  $t_1 = 6, t_{n+1} = t_n + 4$

6.  $t_1 = 9, t_n = \frac{1}{3}t_{n-1}$

7.  $t_1 = 1, t_{n+1} = 3t_n - 1$

8.  $t_1 = 4, t_n = (t_{n-1})^2 - 10$

9.  $t_1 = 1, t_{n+1} = t_n + 2n - 1$

10.  $t_1 = \frac{1}{2}, t_n = \frac{n}{n+1}(t_{n-1} + 1)$

11.  $t_1 = 2$  and  $t_2 = 4, t_n = t_{n-1} + t_{n-2}$

12.  $t_1 = 2$  and  $t_2 = 4, t_n = t_{n-1} \cdot t_{n-2}$

13.  $t_1 = 5$  and  $t_2 = 8, t_n = (t_{n-1} - t_{n-2})^2$

14.  $t_1 = 7$  and  $t_2 = 3, t_n = t_{n-1} - 2t_{n-2}$

## Worksheet 2

I. The domain of the sequence in each exercise consists of the integers 1,2,3,4,5. Write the corresponding range values:

1.  $a_n = 2n - 1$

2.  $a_k = (-1)^k$

3.  $a_n = \left(\frac{1}{2}\right)^{n-3}$

II. Write the first four terms of the sequence given by the formula in each exercise.

4.  $a_n = (-1)^n \cdot n^2$

5.  $a_n = 3(0.1)^n$

6.  $a_n = 3(0.1)^{2n}$

7.  $a_n = \frac{1}{n} - \frac{1}{n+1}$

8.  $a_k = (2k - 10)^2$

9.  $a_n = -2 + (n - 1) \cdot 3$

III. Find the sum of the first five terms of the sequence given by the formula in each exercise:

10.  $a_n = 3n$

11.  $a_n = -6 + 2(n - 1)$

12. Let  $n = 7$ , find the sum:  $2 + 4 + \dots + 2^n$

IV. Evaluate each of the following:

13.  $5 \left( \sum_{k=1}^6 k \right)$

14.  $\sum_{n=1}^4 n^2 + \sum_{n=1}^4 n$

15.  $\sum_{k=1}^8 (-1)^k$

16.  $\sum_{j=1}^6 [-3 + (j - 1)5]$

17.  $\sum_{k=-3}^3 \frac{1}{10^k}$