Show all work for full credit.

1. Write out the first 5 terms of each of the following sequences.

(a) 
$$a_n = n^2 - n$$

(b) 
$$b_n = \frac{(-2)^n}{2n-1}$$

(c) 
$$c_n = c_{n-1} - (c_{n-2})^2$$
 where  $c_1 = 1$  and  $c_2 = 2$ .

2. Given an arithmetic sequence that has terms  $a_1 = 5$  and  $a_3 = -3$ , give the general term of the sequence and find  $a_{50}$ .

3. What is the 6th term of a geometric sequence where  $b_1 = 32$  and  $b_3 = 2$ .

4. Evaluate the following series.

(a) 
$$\sum_{k=1}^{50} (3k - 25)$$

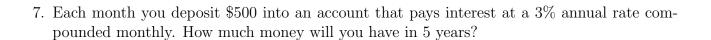
(b) 
$$\sum_{k=1}^{8} \frac{1}{3^k}$$

(c) 
$$\sum_{k=1}^{\infty} 10 \left(\frac{4}{5}\right)^k$$

(d) 
$$\sum_{k=1}^{10} \ln \left( \frac{k+1}{k} \right)$$
. (hint: use properties of logs and write out a few terms of the series.)

5.	You will receive 5 annual payment	s of \$5,000	beginning 3 years	s from now. A	Assuming a con-
	stant annual discount rate of 3%,	what is the	present value of	this series of	payments?

6. You want to borrow \$15,000. If your loan requires equal monthly payments at an annual rate of 4% for 3 years, find the amount you owe each month for this loan. (a reminder to show all work.)



8. Evaluate the series  $\sum_{n=5}^{35} (5n - 8)$ 

Please write out the following statement and sign your name to it as testament to its truth. 'I have worked on this assignment for at most 60 minutes and I have neither given nor received any unauthorized help on this work'