due: April 9

Homework Set 3

Appendix C: Properties of Summations

Write each sum in its expanded form:

1. $\sum_{k=0}^{3} 2^{3k} =$

2. $\sum_{i=4}^{7} x^i =$

Write each sum in sigma notation:

3. $2 + 4 + 6 + 8 + \ldots + 2n =$

4. $\frac{5}{8} + \frac{6}{9} + \frac{7}{10} + \frac{8}{11} + \ldots + \frac{21}{24} =$

Find the value of each sum. (Note: some of your answers may have n in them.)

5. $\sum_{i=1}^{50} 3 =$

6. $\sum_{j=0}^{2} (2^j + j^2) =$

7. $\sum_{k=1}^{n} (7 - 2k) =$

8. $\sum_{k=1}^{n} (k - 1)(k + 2) =$

Calculate the following limit.

9. $\lim_{n\to\infty} \sum_{i=1}^{n} \frac{1}{n} \left(\frac{i}{n}\right)^2 =$

10. $\lim_{n\to\infty} \sum_{k=1}^{n} \frac{3}{n} \left[2 - \frac{k}{n}\right] =$