Homework Set 13-a

(appendix C: Properties of Summations)

Write each sum in its expanded form.

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

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

Write each sum in sigma notation.

$$2 + 4 + 6 + 8 + \cdots + (2n) =$$

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

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

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

$$\sum_{j=0}^{4} \left(2^{j} + j^{2}\right) =$$

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

$$\sum_{k=1}^{n} (k - 1)(k + 5) =$$

Calculate the limit.

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

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