

Warm-Up Problems and Lecture Problems
March 31, 2003

1. Find the pattern for the following sequences. Write the formula for the n -th term of the sequence. (Hint: the idea for all of them are similar.)

(a) $1, 2, 4, 8, \dots$

(b) $\frac{1}{2}, \frac{3}{4}, \frac{9}{8}, \frac{27}{16}, \dots$

(c) $100, 20, 4, \dots$

(d) $100, -20, 4, \dots$

2. Can you find the sum of the sequences above (using your calculator, can you estimate the sum?)

3. Consider the series:

$$\sum_{n=1}^{\infty} \frac{1}{n+4} - \frac{1}{n+5}$$

Write down the series term by term and find the sum.