Problems. January 11.

1. Determine if the sequence is nondecreasing and if it is bounded from above.
$$a_n = \frac{2n-1}{n+1}.$$

2. Write out the first few terms of the series to show how the series starts. If the series converges, find its sum.
$$\sum_{n=0}^{\infty}(-1)^n \frac{3^{n+1}}{5^n}.$$

3. Express the number $1.\overline{23} = 1.23232323...$ as the ratio of two integers.

4. Find the values of x for which the geometric series
$$\sum_{n=1}^{\infty}(-1)^{n+1}\frac{2^n}{x^n}$$
converges. Also, find the sum of the series (as a function of x) for those values of x.