## MATH 133, QUIZ #7

- (1) Which of the following infinite series are geometric series? If you encounter a geometric series, determine whether it diverges or converges and find its value. (6 points):
  - (a)

(c)

$$\sum_{n=1}^{\infty} \frac{n}{2^n}$$

(b) 
$$\sum_{n=1}^{\infty} (-1)^{n-1} 2^n$$

$$\sum_{n=2}^{\infty} \, (-1)^n \, \frac{2^{n-1}}{3^n}$$

(2) Write the number  $0.\overline{123} = 0.123123123...$  as a quotient of two integers. Show your work (2 points).

(3) Does the following infinite series converge or not? (2 points)

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