

## Written Homework 8

Math 126

Solve each of the following problems. Write your solutions clearly and neatly on separate paper, explaining your reasoning with complete sentences. Submit your work either in class or in the homework mailbox (RMS level 3, near the fireplace) by 4:00pm on **Friday, October 11**.

1. Suppose that \$150 is deposited each year into an account that earns 2% interest, compounded annually. Let  $A_n$  be the amount of money in the account immediately after the  $n^{\text{th}}$  deposit.
  - (a) Explain why  $A_n = 150 + 150(1.02) + 150(1.02)^2 + \cdots + 150(1.02)^{n-1}$ . What type of series is this?
  - (b) Compute the value of the account after the 30<sup>th</sup> deposit.
2. Express  $0.0808\overline{08}$  as a fraction. *Hint:* Use a geometric series and find its sum.
3. Suppose that a ball is dropped a height of 5 meters and bounces, and on each bounce it rebounds two-thirds of its previous height. Find the total number of meters that the ball will travel, including the distance traveled on all bounces.