

Name (Last, First): \_\_\_\_\_

**Math 210**  
**Theory of Interest**

Instructor: Ryan Hubscher  
Spring, 2008

**In Class Assignment # 2 (max. points = 4)**  
**Tuesday February 19, 2008**

This assignment is open note/open book, and you may work together in groups of no more than 4. However, each student must hand in his/her own answer sheet. No credit will be given without supporting work.

1. Find the Present Value of a 10 year annuity immediate where the first payment is 200 and each subsequent payment is 3% larger than the preceding payment. The effective annual rate of interest is  $i = 10\%$ .

$$200 \cdot \frac{1 - \left(\frac{1+r}{1+i}\right)^{10}}{i - r} = 200 \cdot \frac{1 - \left(\frac{1.03}{1.10}\right)^{10}}{.10 - .03} = \mathbf{1376.75}$$

2. A stock is selling for \$21 per share. The stock pays a dividend at the end of each year, and the first dividend,  $x$ , will be paid one year from now. Each year, the dividend is expected to grow at a rate of  $r = 5\%$  per year. If The yield rate on the stock is  $i = 15\%$ . Evaluate  $x$  using the dividend discount model.

$$\text{Price} = \frac{D_1}{i - r}$$

$$21 = \frac{x}{.15 - .05}$$

$$x = \mathbf{2.1}$$