

Name: \_\_\_\_\_

**Preview: Chapter 1: The Measurement of Interest**

*Directions: Print out and complete, based on your reading of the text. If there are multiple sheets, staple together the top left corners (in the correct order). Turn in at the start of class on the date due. Do not submit answers on notebook paper or via email. No credit for late or incomplete preview assignments. Assignments may be turned in, in advance, to my mailbox in 233 MSB.*

**§1.7: The effective rate of discount**

1. Define and (if applicable) give a formula for each of the following.

(a) effective rate of discount

(b)  $d_n$

(c) compound discount

(d) equivalency

(e) simple discount

2. (a) If Jim goes to the bank and borrows \$1000 for one year at an effective rate of interest of 8%, then the bank will give Jim \$\_\_\_\_\_ and, at the end of the year, Jim will repay a total of \$\_\_\_\_\_.

(b) If Kim goes to the bank and borrows \$1000 for one year at an effective rate of discount of 8%, then the bank will give Kim \$\_\_\_\_\_ and, at the end of the year, Kim will repay a total of \$\_\_\_\_\_.

3. (a) In the case of effective rate of \_\_\_\_\_, the 8% is taken as a percentage of the balance at the beginning of the year.

(b) In the case of effective rate of \_\_\_\_\_, the 8% is taken as a percentage of the balance at the end of the year.

4. What is the relationship between the terms *amount of discount* and *amount of interest*?

5. Summarize the key distinction between effective rate of interest and effective rate of discount.

(a)

(b)

6. Assuming compound interest:

(a) Express  $i$  as a function of  $d$ .

(b) Express  $d$  as a function of  $i$ .

7. Give two formulas relating  $d$  and  $v$  and interpret each verbally. (Assume compound interest.)

(a)

(b)

8. Give another formula relating  $d$  and  $i$  and interpret it verbally. (Assume compound interest.)

9. Express  $(a(t))^{-1}$  in terms of  $d$ ,
- (a) assuming simple discount:
  
  
  
  
  
  
  
  
  
  
  - (b) assuming compound discount:
10. Read Example 1.8. Find the amount which must be invested at 5% per annum in order to accumulate \$3500 at the end of 10 years
- (a) assuming simple discount.
  
  
  
  
  
  
  
  
  
  
  - (b) assuming compound discount.
11. Read Example 1.9. For the \$10,000 investment given in Example 1.1, find the effective rate of discount for the third year, i.e.,  $d_3$ .
12. Read Example 1.10. Find the present value of \$2000 to be paid at the end of 10 years 7 months invested at 6% effective rate of discount per annum
- (a) assuming compound discount throughout.
  
  
  
  
  
  
  
  
  
  
  - (b) assuming compound discount for whole years and simple discount during the final fractional period.