

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.*

**§1.9: Forces of interest and discount**

1. The measure of the intensity with which interest is operating at each moment of time is called \_\_\_\_\_  
\_\_\_\_\_.
2. Why is  $A'(t)$  unsatisfactory as a measure of interest?
3. Define  $\delta_t$ , the **force of interest at time  $t$** .
4. Give a formula for  $\delta_t$  in terms of logarithms.
5. Express  $a(t)$  in terms of  $\delta_t$ .
6. Define  $\delta_t'$ , the **force of discount at time  $t$** .
7. Why is there a minus sign in the previous formula?

8. Why can we dispense with the symbol  $\delta_t'$ ?
9. If the force of interest is constant over an interval of time, what can be said about the effective rate of interest over that time interval?
10. Assuming  $\delta$  is constant:
- (a) Express  $\delta$  in terms of  $i$ . (b) Express  $i$  in terms of  $\delta$ .
11. Assuming  $\delta$  is constant, state equations relating the following.
- (a)  $\delta$  and  $i^{(m)}$  (b)  $\delta$  and  $d^{(p)}$
12. (a)  $\lim_{m \rightarrow \infty} i^{(m)} = \underline{\hspace{2cm}}$  (b)  $\lim_{m \rightarrow \infty} d^{(m)} = \underline{\hspace{2cm}}$
13. In theory, what is the most fundamental measure of interest?
14. Why are effective and nominal rates of interest and discount used in practice more frequently than force of interest?