M329F Interest Theory
Fall 2020
University of Texas at Austin
HW 1
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Problem 1.1. (2 points) Provide your complete solution to **Problem 1.3.2** from the textbook.

Problem 1.2. (5 points) Provide your complete solution to **Problem 1.3.4** from the textbook.

Problem 1.3. (5 points) Provide your complete solution to **Problem 1.3.6** from the textbook.

Problem 1.4. (4 points) Provide your complete solution to **Problem 1.5.4** from the textbook.

Problem 1.5. (5 points) Provide your complete solution to **Problem 1.6.4** from the textbook.

Problem 1.6. (3 points) Provide your complete solution to **Problem 1.7.2** from the textbook.

Problem 1.7. (4 points) Provide your complete solution to **Problem 1.8.4** from the textbook.

Please, provide your *final answer only* to the following problem(s):

Problem 1.8. (2 points) Let the simple interest rate for an account be denoted by s. The effective rate of interest in the fourth year is given to be equal to 7%. Then $0.088 \leq s \leq 0.09$. *True or false?*

Problem 1.9. (5 pts) Consider an account governed by simple interest at the simple interest rate s. The effective rate of interest in the fifth year is given to be 0.045. Which of the following is the closest to s?

(a) 0.045
(b) 0.05
(c) 0.055
(d) 0.057
(e) 0.06

Problem 1.10. (5 points) Find the total amount of interest that would be paid on a \$1,000 loan over a 10−year period, if the effective interest rate is 0.09 per annum under the following repayment method:

The entire loan plus entire accumulated interest is paid as one lump-sum at the end of the loan term.

(a) \$900
(b) \$990
(c) \$1,367
(d) \$1,557
(e) None of the above

Problem 1.11. (2 pts) In the usual notation, the following equality is true:

$$d = \frac{1}{v} - 1$$

True or false?

Problem 1.12. (5 points) *Source: CAS, May 1993, Problem #6.*
Sally has two IRAs. IRA#1 earns interest at 8% effective annually and IRA#2 earns interest at 10% effective annually. She has not made any contributions since January 1st, 1985, when the amount in IRA#1 was twice the amount in IRA#2. The sum of the two accounts on January 1st, 1993, was \$75,000. Determine how much was in IRA#2 on January 1st, 1985.

(a) Less than \$12,750
(b) Between \$12,750 and \$13,000
(c) Between \$13,000 and \$13,250
(d) Between \$13,250 and \$13,500
(e) None of the above