

BAYLOR UNIVERSITY  
HANKAMER SCHOOL OF BUSINESS  
DEPARTMENT OF FINANCE, INSURANCE & REAL ESTATE

Problem Set #5  
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Name: \_\_\_\_\_

Suppose you have initial wealth ( $W_0$ ) of \$1,000 that is fully invested in an asset that is worth \$1,000. However, there is a 20% probability that this asset will be completely destroyed by a fire, and an 80% probability that a fire won't occur. Your utility function is  $U(W) = \ln W$ , and the price of an insurance policy which fully insures this asset against risk of loss is \$240.

- A. In dollar *and* percentage terms, what is the premium loading for a full coverage insurance policy which costs \$240?
  
- B. Determine the “optimal” level of insurance coverage. Specifically, what coinsurance rate maximizes your expected utility?
  
- C. Suppose you make an “optimal” insurance purchase. What will be the expected value and standard deviation of your wealth?
  
- D. Suppose you have a friend who is identical in all respects to you, except her utility is  $U(W) = -W^{-1}$ . What coinsurance rate maximizes her expected utility? Who is more risk averse – you or your friend?
  
- E. Now suppose that you can fully insure this fire risk for \$200. What is your optimal level of coinsurance at this price? What is your friend's optimal level of coinsurance?