**Week 4 Problem Set 5 (Individual Assignment) (**

| 1. Suppose that a liability insurance policy with a coverage limit of $100,000 (i.e., the insurer will pay liability claims up to $100,000) has a premium of $600. For each of the following people, what is the premium per dollar of personal wealth protected if the policy were purchased? Person | Person's Wealth |
| --- | --- |
| Mary | $ 5,000 |
| Curly | $ 50,000 |
| Moe | $100,000 |
| Alice | $150,000 |
| Nancy | $200,000 |
|  |  |

2. Suppose that Skipper's insurer views him as having the following distribution for the present value of losses:



* + - What is the fair premium for full coverage if the competitive loading (administrative costs and capital costs) equals 15 percent of expected claim costs?
		- Suppose that Skipper believes his probabilities of losses are one-half of what the insurer believes. What is the loading on the policy from Skipper's perspective?

3. Suppose that a business expects to have profits of $100,000 if it is not sued over the coming year. The probability of a suit is 0.04 and the loss if a suit occurs is $250,000. The firm's tax rate if it earns positive profits is 30 percent. If it makes negative profits, it pays a 0 percent rate.

* What is the firm's before-tax expected profit without insurance? What is its after-tax expected profit without insurance?
* Suppose the firm can purchase a liability insurance policy with full coverage for a premium of $11,000. From the insurer's point of view, does this policy have a positive loading?
* What is the firm's expected before and after-tax profit if it purchases the insurance policy (assume that the premium is a tax-deductible expense)?
* Compare the expected after-tax profits with and without insurance. Explain.