

Do all 3 questions. All count equally.

1. List (without proof) 5 properties of the indirect utility function of a consumer with well-behaved preferences.

2. What are a person's Hicksian (compensated) demand functions, **and** her expenditure function, if her direct utility function is

$$u(x_1, x_2) = x_1 + \ln x_2 \quad ?$$

3. A risk-averse expected utility maximizer has a utility-of-wealth function

$$u(W) = \ln W$$

She has initial wealth of \$1,000,000, half of which is invested in a house. There is a probability of 10 percent that her house will burn down this year and be destroyed totally, reducing her wealth to \$500,000.

But she can buy insurance on her house. A firm is willing to sell her I dollars worth of insurance on the house, at an annual price of qI , where $q \geq 0.1$. [So she would collect I dollars from the insurance company if her house burned down, if she purchased a policy.]

She is free to choose to buy as much (or as little) insurance as she wishes.

How much insurance should she buy?