Problem 1: There are two games (lotteries) available:

L_1 : With probability 40% you win 110\$ and with probability 60% you win 115\$

L_2 : With probability 40% you win 50\$ and with probability 60% you win 160\$

What is the expected value of these two lotteries?

Problem 2: A consumer has the following utility function $u(c) = \sqrt(c)$. Calculate the expected utility of the lotteries from problem 1. Which one will the consumer choose? If his default lottery is L_2 how much would he be willing to pay to be able to switch to L_1?

Problem 3: Pat's utility function is $U(c) = \sqrt{c}$, where c is monetary value of his property. Pat owns only a computer, which is worth 1000\$. There is a 20% probability, that it will be stolen and 80%, that it will not.

(a) calculate the expected value of having a computer
(b) calculate the expected utility of this consumer (without insurance)

Suppose now, that Pat can purchase insurance, that will cover the full value of computer in case of theft.

(c) calculate the maximum insurance he is willing to pay. Explain!
(d) depict this on a graph: depict expected utility function and relevant maximum insurance he is willing to pay
(e) what is Pat's attitude towards risk - is he risk averse, risk neutral or risk loving?

Problem 4: Do the previous problem for Mat with utility function $U(x) = x^2$. Explain any difference between your answers (if any).

Problem 5: Jane has utility function over her net income $U(I) = \sqrt{I}$

(a) What are Jane's preferences towards risk? Is she risk averse, risk neutral or risk loving? [Briefly explain your answer]

(b) Jane drives to work every day and she spends a lot of money on parking meters. Often the thought of cheating and not paying for parking crosses her mind. However, she knows that there is a 1/4 probability of being caught on a given day if she cheats, and that the cost of the ticket is \$36. Her daily income is \$100. What is the maximum amount of she will be willing to pay for one day parking?

(c) Paul also faces the same dilemma every single day. But he has a utility function $U(I) = I$. His daily income is also \$100. What are Pauls preferences towards risk? Is he risk averse, risk neutral or risk loving?

(d) If the price of one day parking is \$9.25, will Paul cheat or pay the parking meter? Will Jane cheat or pay the parking meter?