A person with the following utility function, $u(x) = ln(x)$ faces a world where with probability 0.1 will suffer of identity theft which will reduce their wealth from \$250000 to \$100000. This means that we can write:

$$E[u(.)] = 0.9ln(x) + 0.1ln(y)$$

where x would be the wealth under no identity theft and y the wealth under identity theft. This means that the marginal utilities are:
$MU_x = 0.9\frac{1}{x}$, $MU_y = 0.1\frac{1}{y}$
Using this information answer the following questions

1) What is this persons attitude towards risk? explain your answer?

2) What is the certainty equivalent and risk premium? find your answer algebraically and use a graph to represent them.

3) What is the optimal purchase of insurance if the person faces an insurance premium of 15%?

4) What is the optimal purchase of insurance if the person faces an insurance premium of 10%?