Decision Analysis
Homework #5

Question 1

John has the utility function $u(x) = 1 - 3^{-x/50}$ over the range of x = –\$50 to \$5000.

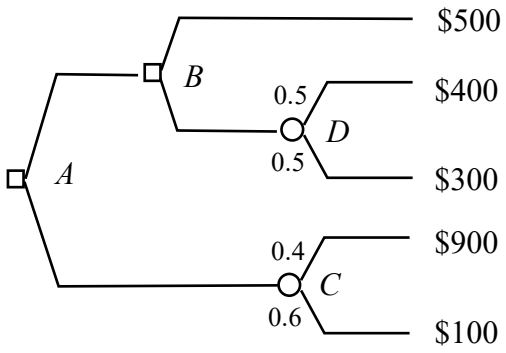
(*a*) What is John's risk attitude?

(*b*) What is John's degree of absolute risk aversion?

(*c*) At what probability (p) of winning \$50 versus losing \$50 with $(1 - p)$ probability is John indifferent between having this deal and not having this deal?

Question 2

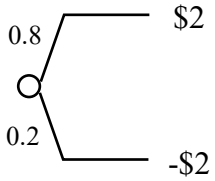
George is faced with the following decision problem:



If George has a constant risk tolerance of \$1,000 for dollar amounts between -\$1,000 and \$2,500, what is his *preference probability* for decision ***A*** with respect to the outcomes \$2,500 and -\$1,000?

Question 3

Susan follows the delta property. She is indifferent between accepting and rejecting the following free deal:



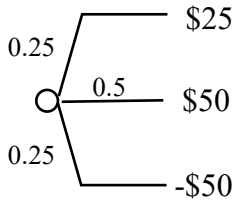
(*a*) What is Susan's risk tolerance?

(*b*) What is Susan's risk attitude?

(*c*) What's Susan utility function such that $u(\$0) = 0$ and $u(\$5) = 1$.

Question 4

Susan has the wealth utility function $u(w) = \frac{w^2}{2000}$, $w \geq 0$, where w is the total assets in dollars. Her current wealth is worth \$200, and she faces the following deal:

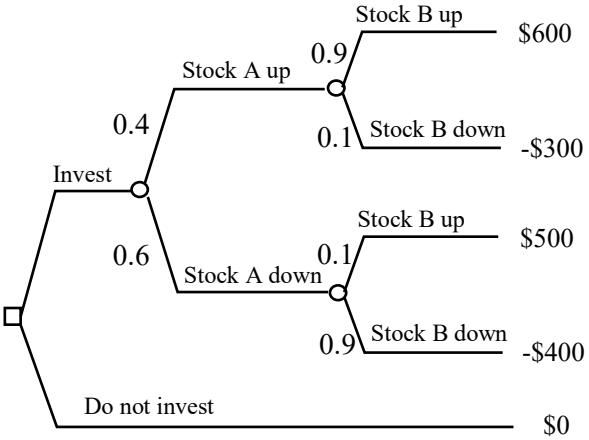


(***a***) What is Susan's personal indifference selling price for this deal?

(***b***) What is Susan's personal indifference buying price for this deal?

Question 5

Kay faces the decision problem as shown below. Her utility function is $u(x) = 2 - 9^{\frac{-x}{1000}}$.



(***a***) What is the utility value for each alternative (Invest versus Not Invest)?

(***b***) What is the expected value of the dollar measures for each alternative?

(***c***) What is Kay's best decision in this circumstance? What is her certainty equivalent for the deal?

(***d***) Which of the first two answers, (*a*) or (*b*), did you use to answer part (*c*)? Why? What is wrong with using the other one?

(***e***) Should Kay pay \$10 for clairvoyance on the performance of Stock *A*?

(***f***) Should Kay pay \$10 for clairvoyance on the performance of Stock *B*?

(***g***) Find Kay's value of clairvoyance on both the performance of Stocks *A* and *B* together.