EXAM MFE QUESTIONS OF THE WEEK

S. Broverman, 2007

Week of January 22/07

You own a car with a replacement value of \$40,000. A one-year insurance policy on the car has a premium of \$1000 and has a deductible of \$500. Insurance costs for damage to the car are paid, if necessary, at the end of the year. Describe the insurance policy as an option with an appropriately defined strike price and payoff and profit at the end of the year. Ignore any effect of interest and depreciation in the value of the car over the year.

The solution can be found below.

Week of January 22/07 - Solution

If damage is greater than 500, up to 40,000, the insurance pays the damage amount minus 500. Another way of describing this is that if the value of the car after damage, say S_1, is between 0 and 39,500, the insurance pays the amount by which the value of the car is below 39,500, so the insurance pays $max\{39,500 - S_1, 0\}$. This is the payoff at the end of the year of a purchased option with a strike price of 39,500. The profit on the insurance policy would be $max\{39,500 - S_1, 0\} - 1000$.