ENG 106 Homework #1 (due 18 Jan)

#1: You’ve decided to buy a Hyundai Veloster. Like every car, a Veloster wears as it ages, providing less in psychological benefits and costing more for maintenance and repair in future years. Therefore you’d like to determine the optimal length of time to keep the car before buying a new one.

a) What might be one or more possible objectives (“wants”), i.e. quantities to be maximized (more is better) or minimized (less is preferable) when making your decision? Example: Maximize X + 2Y.

b) List three or more possible constraints (“needs”, bounds or limits), i.e. conditions that must be met. Examples: X = 3, Y >= 7.

c) What is (are) the decision variable(s) for this problem? Examples: X, Y.

d) List at least five pieces of information you might need in order to make a rational decision.

e) Track down a reputable source for one of the five bits, and report the value. List complete reference/contact information for the source. Example: Spinelli, R., B.R. Hartsough and P.W. Moore. 2008. Recovering sawlogs from pulpwood-size plantation cottonwood. Forest Products Journal 58(4):80-84.

Time Value of Money

2.2 (answer for simple interest: 13 full yrs since interest is paid at the end of the year)

2.6 (partial answer: I3 = $585.70)

2.14a (approx. answer: about $3k)

2.25 (approx. answer: about $16k)

2.44d (approx. answer: about $53k)

2.54 (approx. answer: about $18k)

2.60a (approx. answer: about $900)

2.64

2.71 (approx. answer: about $800)