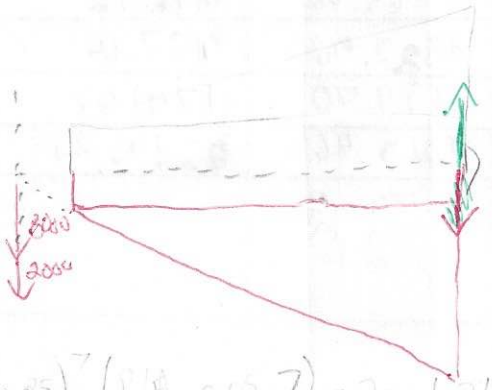
ECON Assignment 5

1. 8000 P
2000 P
20% G
SV = $(1-0.15)^n$ 8000
MARR = 0.05



Periods	Salvage Value	EAC Capital Costs	EAC O&M	Total
7	2564.62	1413.21	761.04	2174.25
8	2179.92	1318.92	848.90	2167.82
9	1852.94	1238.86	935.16	2174.02

@7 years

SV = $(0.85)^7(8000) = 2564.62$

Capital cost EAC = $[10000 - 2564.62(0.71068)][0.17282]$

Capital cost O&M = $[200 + 200(2.8052)]$

@8 years

$(0.85)^8 8000 = 2179.92$

Capital cost EAC = $[10000 - 2179.92(0.67684)][0.15472] =$

$= 1318.92$

Capital cost O&M = $[200 + 200(3.2445)] = 848.90$

@9 years

$(0.85)^9 8000 =$

Capital cost EAC = $[10000 - 1852.94(0.64461)][0.14069]$

EAC O&M = $[200 + 200(3.6758)]$

∴ Economic life is 8 years

(2.)

a) @ 2 years
$SV = (35000)(1-0.3)^2 = 17150$

Period	SV	Capital Cost EAC	O&M EAC	Total
2	17150	10765.08	1742.72	11507.80
3	12005	9322.96	1137.64	10460.60
4	8403.5	8179.70	1791.94	9971.64
5	5882.45	7265.46	2893.28	10158.74

Capital Cost EAC =
$(-17150(0.89)+35000)(0.54544)$
$= 10765.08$

O&M EAC =

$i = \frac{1+0.06}{12} - 1 = -0.47$

$\therefore A = 500\left[\frac{(1-0.47)^2-1}{(-0.47)(0.53)^2}\cdot\frac{1}{12}\right](0.54544)$
$= 1361.69\,(0.54544)$
$= 742.72$

@ 3 years
$SV = (35000)(1-0.3)^3 =$

$Cap = \left[-12005(0.83962)+35000\right](0.37411) = 9322.96$

$O\&M = 500\left[\frac{(1-0.47)^3-1}{(-0.47)(0.53)^3}\cdot\frac{1}{2}\right](0.37411) = 1137.64$

@ 4 years
$SV = (35000)(1-0.3)^4 = 8403.5$

$Cap = \left[-8403.5(0.74209)+35000\right](0.28859) = 8179.70$

$O\&M = 500\left[\frac{(0.53)^4-1}{(-0.47)(0.53)^4}\cdot\frac{1}{2}\right](0.28859) = 1791.94$

@ 5 years
$SV = (35000)(0.7)^5 = 5882.45$

$Cap = \left[-5882.45(0.74726)+35000\right](0.23740) = 7265.46$

$O\&M = \left[500\left(\frac{0.535-1}{(-0.47)(0.53)^5}\cdot\frac{1}{2}\right)\right](0.23740) = 2893.28$

$\therefore$ they should replace vehicles every 4 years

b) 0.50/km

$\therefore 11500 = EAC_1$

$\therefore EAC_1 > 9471.64$, $\therefore$ replace lease w/ own vehicle

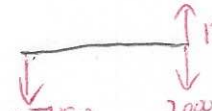
c) Then

$(18000 * 0.5)$

$\therefore$ 9000 is less than 9471.64, $\therefore$ they should have leased

Now $SV_2 = (1-0.3)^2 (35000)$

(F/P, i, N)



$\therefore EAC\ Cap = 17150(1.06) - 12005$

$= 8174$

$EAC_{O\&M} = 2000$ $\therefore EAC\ total = 8174$

$\therefore$ EAC of 8174 < 9000, $\therefore$ keep vehicle