

1. You borrowed money from a bank using a mortgage loan for the specified amount (the last two digits of your student number x 10,000 TL). This debt will be paid in equal monthly installments within the specified years (last digit of your student number +2 years). You can determine the mortgage loan rate from any financial institution. (Attach the website of the financial institution showing the loan rate to your homework).
 - a. Determine the values of different types for the borrowing rate (mortgage loan rate)
 - i. Annual effective interest rate, (2 P)
 - ii. Annual nominal interest rate, (2 P)
 - iii. Three years nominal interest rate , (2 P)
 - iv. 8-month effective interest rate (2 P)
 - b. Form monthly debt payment table, (15 P)
 - c. Prepare the monthly debt payment table in case you restructure your remaining debt at 0.5% lower than the used borrowing rate after the specified ([last digit of your student number +1] x5) months. (17 P)
 2. The table containing technical and economic values prepared to calculate the costs of vehicles with Otto and Diesel technology is given below. Fill in the table according to the instructions given below and calculate the required values from you.
 - i. Find the purchase price and fuel consumption values for an otto and diesel vehicle you will specify. Give your references in the homework attachment.
 - ii. Set the fuel prices according to the brand you want for the province you live in. Calculate the fuel price increases as an annual rate according to the prices of the last 5 years. Indicate the related data and resources you used in your homework.
 - a. 15-year costs of the vehicles will be taken into account. Annual discount rate is 17%. Accordingly, using the present value method, calculate the annual fixed travel distance (km) for which vehicles are advantageous. Show the present value change of the costs with regard to the annual travel distance of the vehicles on the graph. Use the Excel program in graphic drawing. (30 P)
 - b. Make a sensitivity analysis based on fuel price escalation and draw its graph. Take the fuel price escalations with a 0.5% change between 1.5% lower and 1.5% higher than the used value. Plot the
-

2. The table containing technical and economic values prepared to calculate the costs of vehicles with Otto and Diesel technology is given below. Fill in the table according to the instructions given below and calculate the required values from you.
- Find the purchase price and fuel consumption values for an otto and diesel vehicle you will specify. Give your references in the homework attachment.
 - Set the fuel prices according to the brand you want for the province you live in. Calculate the fuel price increases as an annual rate according to the prices of the last 5 years. Indicate the related data and resources you used in your homework.
- 15-year costs of the vehicles will be taken into account. Annual discount rate is 17%. Accordingly, using the present value method, calculate the annual fixed travel distance (km) for which vehicles are advantageous. Show the present value change of the costs with regard to the annual travel distance of the vehicles on the graph. Use the Excel program in graphic drawing. **(30 P)**
 - Make a sensitivity analysis based on fuel price escalation and draw its graph. Take the fuel price escalations with a 0.5% change, between 1.5% lower and 1.5% higher than the used value. Plot the present value change of costs with regard to the fuel price escalation for otto and diesel vehicles in a single graph. **(30 P)**

	<i>OTTO</i>	<i>DIESEL</i>
Vehicle Purchase Price (TL)		
Fuel Consumption (lt/100 km)		
Fuel Price (TL/lt)		
Annual Fuel Price Escalation [%]		
Annual Maintenance cost	1400 TL	1900 TL
Maintenance Cost Change	It will increase by 150 TL every year	It will increase 15% every year
Salvage Value	40% of the purchase price	50% of the purchase price

Question 1

0-Assigning values

P = The borrowed money from the bank = $37 \times 10000 = 370000$ ₺

n_1 = In that time debt is planned to be paid in = $7 + 2 = 9$ years

Tutar


370.000 TL

Vade

108 Ay

Faiz Oranı

% 1,65


 Taksit Tutarı : 7.362,22 TL
 Faiz Oranı : % 1,65
 Yıllık Maliyet Oranı : % 21.9702

<https://www.ziraatbank.com.tr/tr/hesaplama-araclari/kredi-hesaplama/konut-kredisi>

*this borrowing rate calculated as monthly.

a-Determining the values of different types for the borrowing rate

i. Annual effective interest rate

$$i_{ae} = (1 + i)^n - 1 = (1 + 0.0165)^{12} - 1 \cong 0.217, (n = \frac{12}{1} = 12)$$

ii. Annual Nominal Interest Rate

$$i_{an} = i \times 12 = 0.0165 \times 12 = 0.198$$

iii. Three years nominal interest rate

$$i_{an(3years)} = i_{an} \times n = 0.198 \times 3 = 0.594, (n = \frac{3}{1} = 3)$$

iv. 8-month effective interest rate

$$i_{e(8\text{month})} = (1 + i)^n - 1 = (1 + 0.0165)^8 - 1 \cong 0.1399, (n = \frac{8}{1} = 8)$$

b. Form monthly debt payment table

Amount Borrowed		370.000 ₺				23	336.978,26 ₺	7.362,22 ₺	5.560,14 ₺	1.802,08 ₺	335.176,18 ₺	
Periods(mon		108				24	335.176,18 ₺	7.362,22 ₺	5.530,41 ₺	1.831,81 ₺	333.344,37 ₺	
Rate		0,0165				25	333.344,37 ₺	7.362,22 ₺	5.500,18 ₺	1.862,04 ₺	331.482,33 ₺	
Payment		7.362,22 ₺				26	331.482,33 ₺	7.362,22 ₺	5.469,46 ₺	1.892,76 ₺	329.589,57 ₺	
Months	Beginning	Pmt	Interest	Principal	Endingba	27	329.589,57 ₺	7.362,22 ₺	5.438,23 ₺	1.923,99 ₺	327.665,57 ₺	
	1	370.000 ₺	7.362,22 ₺	6.105 ₺	1.257,22 ₺	368.742,7	28	327.665,57 ₺	7.362,22 ₺	5.406,48 ₺	1.955,74 ₺	325.709,83 ₺
	2	368.742,78 ₺	7.362,22 ₺	6.084,26 ₺	1.277,96 ₺	367.464,8	29	325.709,83 ₺	7.362,22 ₺	5.374,21 ₺	1.988,01 ₺	323.721,83 ₺
	3	367.464,81 ₺	7.362,22 ₺	6.063,17 ₺	1.299,05 ₺	366.165,7	30	323.721,83 ₺	7.362,22 ₺	5.341,41 ₺	2.020,81 ₺	321.701,02 ₺
	4	366.165,76 ₺	7.362,22 ₺	6.041,74 ₺	1.320,49 ₺	364.845,2	31	321.701,02 ₺	7.362,22 ₺	5.308,07 ₺	2.054,15 ₺	319.646,86 ₺
	5	364.845,28 ₺	7.362,22 ₺	6.019,95 ₺	1.342,27 ₺	363.503,0	32	319.646,86 ₺	7.362,22 ₺	5.274,17 ₺	2.088,05 ₺	317.558,81 ₺
	6	363.503,00 ₺	7.362,22 ₺	5.997,80 ₺	1.364,42 ₺	362.138,5	33	317.558,81 ₺	7.362,22 ₺	5.239,72 ₺	2.122,50 ₺	315.436,31 ₺
	7	362.138,58 ₺	7.362,22 ₺	5.975,29 ₺	1.386,93 ₺	360.751,6	34	315.436,31 ₺	7.362,22 ₺	5.204,70 ₺	2.157,52 ₺	313.278,79 ₺
	8	360.751,65 ₺	7.362,22 ₺	5.952,40 ₺	1.409,82 ₺	359.341,8	35	313.278,79 ₺	7.362,22 ₺	5.169,10 ₺	2.193,12 ₺	311.085,67 ₺
	9	359.341,83 ₺	7.362,22 ₺	5.929,14 ₺	1.433,08 ₺	357.908,7	36	311.085,67 ₺	7.362,22 ₺	5.132,91 ₺	2.229,31 ₺	308.856,37 ₺
	10	357.908,75 ₺	7.362,22 ₺	5.905,49 ₺	1.456,73 ₺	356.452,0	37	308.856,37 ₺	7.362,22 ₺	5.096,13 ₺	2.266,09 ₺	306.590,28 ₺
	11	356.452,03 ₺	7.362,22 ₺	5.881,46 ₺	1.480,76 ₺	354.971,2	38	306.590,28 ₺	7.362,22 ₺	5.058,74 ₺	2.303,48 ₺	304.286,79 ₺
	12	354.971,26 ₺	7.362,22 ₺	5.857,03 ₺	1.505,19 ₺	353.466,0	39	304.286,79 ₺	7.362,22 ₺	5.020,73 ₺	2.341,49 ₺	301.945,31 ₺
	13	353.466,07 ₺	7.362,22 ₺	5.832,19 ₺	1.530,03 ₺	351.936,0	40	301.945,31 ₺	7.362,22 ₺	4.982,10 ₺	2.380,12 ₺	299.565,18 ₺
	14	351.936,04 ₺	7.362,22 ₺	5.806,94 ₺	1.555,28 ₺	350.380,7	41	299.565,18 ₺	7.362,22 ₺	4.942,83 ₺	2.419,40 ₺	297.145,79 ₺
	15	350.380,76 ₺	7.362,22 ₺	5.781,28 ₺	1.580,94 ₺	348.799,8	42	297.145,79 ₺	7.362,22 ₺	4.902,91 ₺	2.459,32 ₺	294.686,47 ₺
	16	348.799,82 ₺	7.362,22 ₺	5.755,20 ₺	1.607,02 ₺	347.192,8	43	294.686,47 ₺	7.362,22 ₺	4.862,33 ₺	2.499,89 ₺	292.186,58 ₺
	17	347.192,80 ₺	7.362,22 ₺	5.728,68 ₺	1.633,54 ₺	345.559,2	44	292.186,58 ₺	7.362,22 ₺	4.821,08 ₺	2.541,14 ₺	289.645,44 ₺
	18	345.559,26 ₺	7.362,22 ₺	5.701,73 ₺	1.660,49 ₺	343.898,7	45	289.645,44 ₺	7.362,22 ₺	4.779,15 ₺	2.583,07 ₺	287.062,37 ₺
	19	343.898,77 ₺	7.362,22 ₺	5.674,33 ₺	1.687,89 ₺	342.210,8	46	287.062,37 ₺	7.362,22 ₺	4.736,53 ₺	2.625,69 ₺	284.436,67 ₺
	20	342.210,88 ₺	7.362,22 ₺	5.646,48 ₺	1.715,74 ₺	340.495,1	47	284.436,67 ₺	7.362,22 ₺	4.693,21 ₺	2.669,02 ₺	281.767,66 ₺
	21	340.495,14 ₺	7.362,22 ₺	5.618,17 ₺	1.744,05 ₺	338.751,0	48	281.767,66 ₺	7.362,22 ₺	4.649,17 ₺	2.713,05 ₺	279.054,61 ₺
	22	338.751,09 ₺	7.362,22 ₺	5.589,39 ₺	1.772,83 ₺	336.978,2	49	279.054,61 ₺	7.362,22 ₺	4.604,40 ₺	2.757,82 ₺	276.296,79 ₺
	23	336.978,26 ₺	7.362,22 ₺	5.560,14 ₺	1.802,08 ₺	335.176,1	50	276.296,79 ₺	7.362,22 ₺	4.558,90 ₺	2.803,32 ₺	273.493,46 ₺
							51	273.493,46 ₺	7.362,22 ₺	4.512,64 ₺	2.849,58 ₺	270.643,88 ₺

50	276.296,79 ₺	7.362,22 ₺	4.558,90 ₺	2.803,32 ₺	273.493	77	181.900,38 ₺	7.362,22 ₺	3.001,36 ₺	4.360,86 ₺	177.539,52 ₺
51	273.493,46 ₺	7.362,22 ₺	4.512,64 ₺	2.849,58 ₺	270.643	78	177.539,52 ₺	7.362,22 ₺	2.929,40 ₺	4.432,82 ₺	173.106,70 ₺
52	270.643,88 ₺	7.362,22 ₺	4.465,62 ₺	2.896,60 ₺	267.747	79	173.106,70 ₺	7.362,22 ₺	2.856,26 ₺	4.505,96 ₺	168.600,74 ₺
53	267.747,29 ₺	7.362,22 ₺	4.417,83 ₺	2.944,39 ₺	264.802	80	168.600,74 ₺	7.362,22 ₺	2.781,91 ₺	4.580,31 ₺	164.020,43 ₺
54	264.802,90 ₺	7.362,22 ₺	4.369,25 ₺	2.992,97 ₺	261.809	81	164.020,43 ₺	7.362,22 ₺	2.706,34 ₺	4.655,88 ₺	159.364,55 ₺
55	261.809,92 ₺	7.362,22 ₺	4.319,86 ₺	3.042,36 ₺	258.767	82	159.364,55 ₺	7.362,22 ₺	2.629,52 ₺	4.732,71 ₺	154.631,84 ₺
56	258.767,57 ₺	7.362,22 ₺	4.269,66 ₺	3.092,56 ₺	255.675	83	154.631,84 ₺	7.362,22 ₺	2.551,43 ₺	4.810,80 ₺	149.821,05 ₺
57	255.675,01 ₺	7.362,22 ₺	4.218,64 ₺	3.143,58 ₺	252.531	84	149.821,05 ₺	7.362,22 ₺	2.472,05 ₺	4.890,17 ₺	144.930,87 ₺
58	252.531,43 ₺	7.362,22 ₺	4.166,77 ₺	3.195,45 ₺	249.335	85	144.930,87 ₺	7.362,22 ₺	2.391,36 ₺	4.970,86 ₺	139.960,01 ₺
59	249.335,98 ₺	7.362,22 ₺	4.114,04 ₺	3.248,18 ₺	246.087	86	139.960,01 ₺	7.362,22 ₺	2.309,34 ₺	5.052,88 ₺	134.907,13 ₺
60	246.087,80 ₺	7.362,22 ₺	4.060,45 ₺	3.301,77 ₺	242.786	87	134.907,13 ₺	7.362,22 ₺	2.225,97 ₺	5.136,25 ₺	129.770,88 ₺
61	242.786,03 ₺	7.362,22 ₺	4.005,97 ₺	3.356,25 ₺	239.429	88	129.770,88 ₺	7.362,22 ₺	2.141,22 ₺	5.221,00 ₺	124.549,88 ₺
62	239.429,78 ₺	7.362,22 ₺	3.950,59 ₺	3.411,63 ₺	236.018	89	124.549,88 ₺	7.362,22 ₺	2.055,07 ₺	5.307,15 ₺	119.242,73 ₺
63	236.018,15 ₺	7.362,22 ₺	3.894,30 ₺	3.467,92 ₺	232.550	90	119.242,73 ₺	7.362,22 ₺	1.967,51 ₺	5.394,72 ₺	113.848,01 ₺
64	232.550,23 ₺	7.362,22 ₺	3.837,08 ₺	3.525,14 ₺	229.025	91	113.848,01 ₺	7.362,22 ₺	1.878,49 ₺	5.483,73 ₺	108.364,29 ₺
65	229.025,09 ₺	7.362,22 ₺	3.778,91 ₺	3.583,31 ₺	225.441	92	108.364,29 ₺	7.362,22 ₺	1.788,01 ₺	5.574,21 ₺	102.790,08 ₺
66	225.441,78 ₺	7.362,22 ₺	3.719,79 ₺	3.642,43 ₺	221.799	93	102.790,08 ₺	7.362,22 ₺	1.696,04 ₺	5.666,18 ₺	97.123,89 ₺
67	221.799,35 ₺	7.362,22 ₺	3.659,69 ₺	3.702,53 ₺	218.096	94	97.123,89 ₺	7.362,22 ₺	1.602,54 ₺	5.759,68 ₺	91.364,22 ₺
68	218.096,82 ₺	7.362,22 ₺	3.598,60 ₺	3.763,62 ₺	214.333	95	91.364,22 ₺	7.362,22 ₺	1.507,51 ₺	5.854,71 ₺	85.509,50 ₺
69	214.333,19 ₺	7.362,22 ₺	3.536,50 ₺	3.825,72 ₺	210.507	96	85.509,50 ₺	7.362,22 ₺	1.410,91 ₺	5.951,31 ₺	79.558,19 ₺
70	210.507,47 ₺	7.362,22 ₺	3.473,37 ₺	3.888,85 ₺	206.618	97	79.558,19 ₺	7.362,22 ₺	1.312,71 ₺	6.049,51 ₺	73.508,68 ₺
71	206.618,62 ₺	7.362,22 ₺	3.409,21 ₺	3.953,01 ₺	202.665	98	73.508,68 ₺	7.362,22 ₺	1.212,89 ₺	6.149,33 ₺	67.359,35 ₺
72	202.665,61 ₺	7.362,22 ₺	3.343,98 ₺	4.018,24 ₺	198.647	99	67.359,35 ₺	7.362,22 ₺	1.111,43 ₺	6.250,79 ₺	61.108,56 ₺
73	198.647,37 ₺	7.362,22 ₺	3.277,68 ₺	4.084,54 ₺	194.562	100	61.108,56 ₺	7.362,22 ₺	1.008,29 ₺	6.353,93 ₺	54.754,63 ₺
74	194.562,83 ₺	7.362,22 ₺	3.210,29 ₺	4.151,93 ₺	190.410	101	54.754,63 ₺	7.362,22 ₺	903,45 ₺	6.458,77 ₺	48.295,86 ₺
75	190.410,90 ₺	7.362,22 ₺	3.141,78 ₺	4.220,44 ₺	186.190	102	48.295,86 ₺	7.362,22 ₺	796,88 ₺	6.565,34 ₺	41.730,52 ₺
76	186.190,46 ₺	7.362,22 ₺	3.072,14 ₺	4.290,08 ₺	181.900	103	41.730,52 ₺	7.362,22 ₺	688,55 ₺	6.673,67 ₺	35.056,86 ₺
77	181.900,38 ₺	7.362,22 ₺	3.001,36 ₺	4.360,86 ₺	177.539	104	35.056,86 ₺	7.362,22 ₺	578,44 ₺	6.783,78 ₺	28.273,08 ₺
78	177.539,52 ₺	7.362,22 ₺	2.929,40 ₺	4.432,82 ₺	173.106	105	28.273,08 ₺	7.362,22 ₺	466,51 ₺	6.895,71 ₺	21.377,36 ₺
105	28.273,08 ₺	7.362,22 ₺		466,51 ₺	6.895,71 ₺	21.377,36 ₺					
106	21.377,36 ₺	7.362,22 ₺		352,73 ₺	7.009,49 ₺	14.367,87 ₺					
107	14.367,87 ₺	7.362,22 ₺		237,07 ₺	7.125,15 ₺	7.242,72 ₺					
108	7.242,72 ₺	7.362,22 ₺		119,50 ₺	7.242,72 ₺	0,00 ₺					

c-Prepare the monthly debt payment table in restructure case

At first we have determine the remaining debt.To do this we can use the previous title's graphic.So 41st month is starting with $299565,18\text{₺} \cong 299565 \text{ ₺}$ debt.

or we can use $370000(F/P,0.0165,40)-7362.22 (F/A , 0.0165,40)$

and by the way new interest rate is $0.0165-0.005=0.0115$

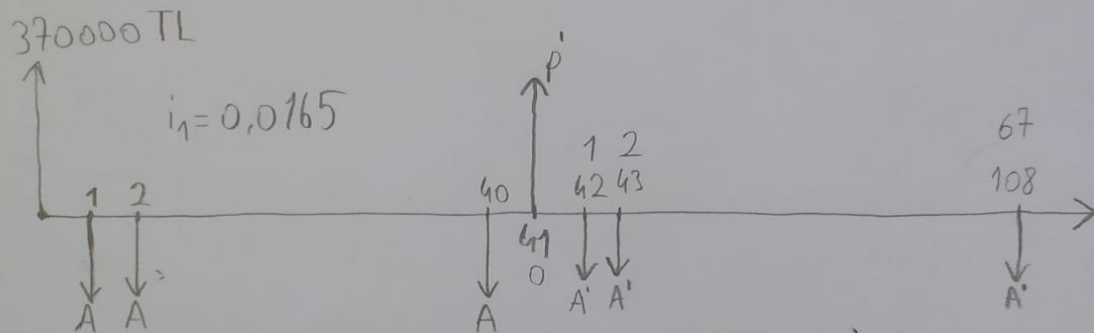
Amount Borrowed		299.565 ₺				22	228.950,63 ₺	6.437,10 ₺	2.632,93 ₺	3.804,16 ₺	225.146,47 ₺
Periods(months)		67				23	225.146,47 ₺	6.437,10 ₺	2.589,18 ₺	3.847,91 ₺	221.298,56 ₺
Rate		0,0115				24	221.298,56 ₺	6.437,10 ₺	2.544,93 ₺	3.892,16 ₺	217.406,40 ₺
Payment		6.437,10 ₺				25	217.406,40 ₺	6.437,10 ₺	2.500,17 ₺	3.936,92 ₺	213.469,47 ₺
Months	Beginning	Pmt	Interest	Principal	Ending balance	26	213.469,47 ₺	6.437,10 ₺	2.454,90 ₺	3.982,20 ₺	209.487,28 ₺
1	299.565 ₺	6.437,10 ₺	3.445 ₺	2.992,10 ₺	296.573,0 ₺	27	209.487,28 ₺	6.437,10 ₺	2.409,10 ₺	4.027,99 ₺	205.459,29 ₺
2	296.573,08 ₺	6.437,10 ₺	3.410,59 ₺	3.026,51 ₺	293.546,5 ₺	28	205.459,29 ₺	6.437,10 ₺	2.362,78 ₺	4.074,31 ₺	201.384,97 ₺
3	293.546,58 ₺	6.437,10 ₺	3.375,79 ₺	3.061,31 ₺	290.485,2 ₺	29	201.384,97 ₺	6.437,10 ₺	2.315,93 ₺	4.121,17 ₺	197.263,80 ₺
4	290.485,27 ₺	6.437,10 ₺	3.340,58 ₺	3.096,51 ₺	287.388,7 ₺	30	197.263,80 ₺	6.437,10 ₺	2.268,53 ₺	4.168,56 ₺	193.095,24 ₺
5	287.388,75 ₺	6.437,10 ₺	3.304,97 ₺	3.132,12 ₺	284.256,6 ₺	31	193.095,24 ₺	6.437,10 ₺	2.220,60 ₺	4.216,50 ₺	188.878,74 ₺
6	284.256,63 ₺	6.437,10 ₺	3.268,95 ₺	3.168,14 ₺	281.088,4 ₺	32	188.878,74 ₺	6.437,10 ₺	2.172,11 ₺	4.264,99 ₺	184.613,75 ₺
7	281.088,48 ₺	6.437,10 ₺	3.232,52 ₺	3.204,58 ₺	277.883,9 ₺	33	184.613,75 ₺	6.437,10 ₺	2.123,06 ₺	4.314,04 ₺	180.299,71 ₺
8	277.883,91 ₺	6.437,10 ₺	3.195,66 ₺	3.241,43 ₺	274.642,4 ₺	34	180.299,71 ₺	6.437,10 ₺	2.073,45 ₺	4.363,65 ₺	175.936,06 ₺
9	274.642,48 ₺	6.437,10 ₺	3.158,39 ₺	3.278,71 ₺	271.363,7 ₺	35	175.936,06 ₺	6.437,10 ₺	2.023,26 ₺	4.413,83 ₺	171.522,23 ₺
10	271.363,77 ₺	6.437,10 ₺	3.120,68 ₺	3.316,41 ₺	268.047,3 ₺	36	171.522,23 ₺	6.437,10 ₺	1.972,51 ₺	4.464,59 ₺	167.057,64 ₺
11	268.047,36 ₺	6.437,10 ₺	3.082,54 ₺	3.354,55 ₺	264.692,8 ₺	37	167.057,64 ₺	6.437,10 ₺	1.921,16 ₺	4.515,93 ₺	162.541,71 ₺
12	264.692,81 ₺	6.437,10 ₺	3.043,97 ₺	3.393,13 ₺	261.299,6 ₺	38	162.541,71 ₺	6.437,10 ₺	1.869,23 ₺	4.567,87 ₺	157.973,85 ₺
13	261.299,68 ₺	6.437,10 ₺	3.004,95 ₺	3.432,15 ₺	257.867,5 ₺	39	157.973,85 ₺	6.437,10 ₺	1.816,70 ₺	4.620,40 ₺	153.353,45 ₺
14	257.867,53 ₺	6.437,10 ₺	2.965,48 ₺	3.471,62 ₺	254.395,9 ₺	40	153.353,45 ₺	6.437,10 ₺	1.763,56 ₺	4.673,53 ₺	148.679,92 ₺
15	254.395,91 ₺	6.437,10 ₺	2.925,55 ₺	3.511,54 ₺	250.884,3 ₺	41	148.679,92 ₺	6.437,10 ₺	1.709,82 ₺	4.727,28 ₺	143.952,64 ₺
16	250.884,37 ₺	6.437,10 ₺	2.885,17 ₺	3.551,93 ₺	247.332,4 ₺	42	143.952,64 ₺	6.437,10 ₺	1.655,46 ₺	4.781,64 ₺	139.171,00 ₺
17	247.332,44 ₺	6.437,10 ₺	2.844,32 ₺	3.592,77 ₺	243.739,6 ₺	43	139.171,00 ₺	6.437,10 ₺	1.600,47 ₺	4.836,63 ₺	134.334,37 ₺
18	243.739,67 ₺	6.437,10 ₺	2.803,01 ₺	3.634,09 ₺	240.105,5 ₺	44	134.334,37 ₺	6.437,10 ₺	1.544,85 ₺	4.892,25 ₺	129.442,12 ₺
19	240.105,58 ₺	6.437,10 ₺	2.761,21 ₺	3.675,88 ₺	236.429,7 ₺	45	129.442,12 ₺	6.437,10 ₺	1.488,58 ₺	4.948,51 ₺	124.493,61 ₺
20	236.429,70 ₺	6.437,10 ₺	2.718,94 ₺	3.718,15 ₺	232.711,5 ₺	46	124.493,61 ₺	6.437,10 ₺	1.431,68 ₺	5.005,42 ₺	119.488,19 ₺
21	232.711,54 ₺	6.437,10 ₺	2.676,18 ₺	3.760,91 ₺	228.950,6 ₺	47	119.488,19 ₺	6.437,10 ₺	1.374,11 ₺	5.062,98 ₺	114.425,21 ₺
22	228.950,63 ₺	6.437,10 ₺	2.632,93 ₺	3.804,16 ₺	225.146,4 ₺	48	114.425,21 ₺	6.437,10 ₺	1.315,89 ₺	5.121,21 ₺	109.304,01 ₺
23	225.146,47 ₺	6.437,10 ₺	2.589,18 ₺	3.847,91 ₺	221.298,5 ₺	49	109.304,01 ₺	6.437,10 ₺	1.257,00 ₺	5.180,10 ₺	104.123,91 ₺
24	221.298,56 ₺	6.437,10 ₺	2.544,93 ₺	3.892,16 ₺	221.298,56 ₺	50	104.123,91 ₺	6.437,10 ₺	1.197,42 ₺	5.239,67 ₺	98.884,24 ₺

50	104.123,91 ₺	6.437,10 ₺	1.197,42 ₺	5.239,67 ₺	98.884,24 ₺
51	98.884,24 ₺	6.437,10 ₺	1.137,17 ₺	5.299,93 ₺	93.584,31 ₺
52	93.584,31 ₺	6.437,10 ₺	1.076,22 ₺	5.360,88 ₺	88.223,43 ₺
53	88.223,43 ₺	6.437,10 ₺	1.014,57 ₺	5.422,53 ₺	82.800,91 ₺
54	82.800,91 ₺	6.437,10 ₺	952,21 ₺	5.484,89 ₺	77.316,02 ₺
55	77.316,02 ₺	6.437,10 ₺	889,13 ₺	5.547,96 ₺	71.768,06 ₺
56	71.768,06 ₺	6.437,10 ₺	825,33 ₺	5.611,76 ₺	66.156,30 ₺
57	66.156,30 ₺	6.437,10 ₺	760,80 ₺	5.676,30 ₺	60.480,00 ₺
58	60.480,00 ₺	6.437,10 ₺	695,52 ₺	5.741,58 ₺	54.738,42 ₺
59	54.738,42 ₺	6.437,10 ₺	629,49 ₺	5.807,60 ₺	48.930,82 ₺
60	48.930,82 ₺	6.437,10 ₺	562,70 ₺	5.874,39 ₺	43.056,43 ₺
61	43.056,43 ₺	6.437,10 ₺	495,15 ₺	5.941,95 ₺	37.114,48 ₺
62	37.114,48 ₺	6.437,10 ₺	426,82 ₺	6.010,28 ₺	31.104,20 ₺
63	31.104,20 ₺	6.437,10 ₺	357,70 ₺	6.079,40 ₺	25.024,81 ₺
64	25.024,81 ₺	6.437,10 ₺	287,79 ₺	6.149,31 ₺	18.875,50 ₺
65	18.875,50 ₺	6.437,10 ₺	217,07 ₺	6.220,03 ₺	12.655,47 ₺
66	12.655,47 ₺	6.437,10 ₺	145,54 ₺	6.291,56 ₺	6.363,91 ₺
67	6.363,91 ₺	6.437,10 ₺	73,18 ₺	6.363,91 ₺	0,00 ₺

$$P' = P(F/P, i_1, n) - A(F/A, i_1, n) =$$

$$\rightarrow 370000(1+0,0165)^{40} - 7362,22((1+0,0165)^{40} - 1/0,0165)$$

$$\rightarrow P' = 299565,2118 \cong 299565 \text{ €}$$



$$A' = P'(A/P', i, n) = 299565 \left[\frac{(1+0,0115)^{67} \times 0,0115}{(1+0,0115)^{67} - 1} \right]$$

$$\rightarrow A' = 6437,091668 \cong 6437,10 \text{ €}$$

Hokan Aktaş
18065037

as we see the debt value at the end of 40th month and the unifrom payments for restructured debt are same.

Question 2

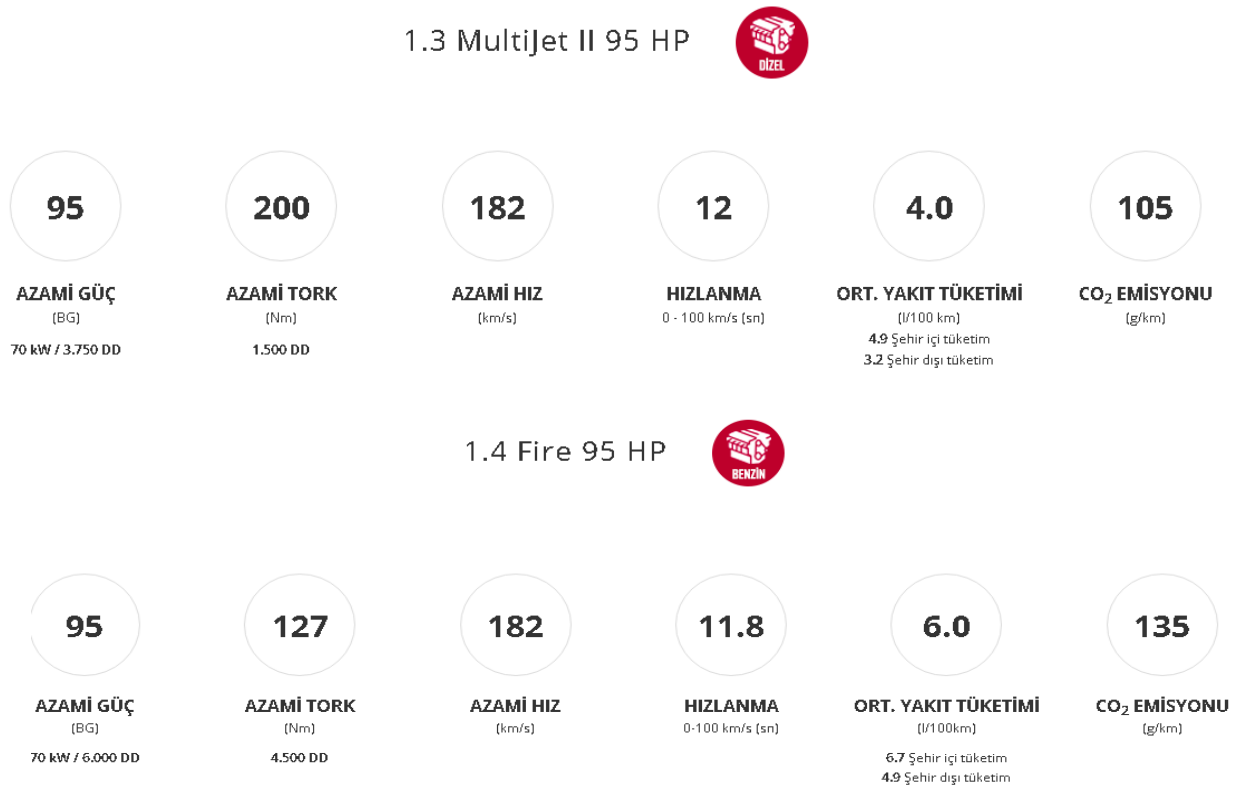
i.

2020 Purchase Value of Fiat Egea Sedan Urban Plus

Fiyatlar				
Versiyon	Donanım	Şanzıman Tipi	Yakıt Tipi	Tavsiye Edilen Liste Fiyatı
1.4 Fire 95 HP	Urban	Manuel	Benzinli	144.900 TL
1.3 MJet 95 HP	Urban	Manuel	Dizel	179.900 TL

<https://otomobil.fiat.com.tr/otomobil-fiyat-listesi>

Engines Comprasion



<https://otomobil.fiat.com.tr/fiat-egae-sedan/egae-sedan/teknik-ozellikler>

<https://otomobil.fiat.com.tr/fiat-egea-sedan/egea-sedan/teknik-ozellikler>

We will calculate the consumptions as the average of extra urban and urban consumptions.

Diesel consumption is $= (4.9+3.2)/2 = 4.05$ lt consumption per 100 km.

Otto consumption is $= (6.7+4.9)/2=5.8$ lt consumption per 100km.

ii.

ŞEHİR	İLÇE	BAŞLANGIÇ TARİHİ	BİTİŞ TARİHİ
SAMSUN * ▾	SAMSUN * ▾	10.12.2015	10.12.2020

SAMSUN / SAMSUN

TARİH	KURŞUNSUZ BENZİN (TL/LT)	GAZ YAĞI (TL/LT)	TP MOTORİN (TL/LT)	MOTORİN (TL/LT)	KALORİFER YAKITI (TL/KG)	FUEL OIL (TL/KG)	Y.K. FUEL OIL (TL/KG)
11 Aralık 2015	4,29	2,91	3,55	3,53	1,86	1,90	1,57
10 Aralık 2016	5,08	3,86	4,49	4,47	2,54	2,48	2,29
09 Aralık 2017	5,51	4,37	5,09	5,07	2,98	2,61	2,48
06 Aralık 2018	6,19	5,37	6,00	5,96	3,98	3,50	3,39
10 Aralık 2019	6,99	5,68	6,58	6,54	4,42	4,13	2,65
10 Aralık 2020	7,14	5,41	6,69	6,66	4,68	4,29	3,74

let's calculate the annual rates for each fuel.

$$\text{for diesel } g_{\text{annual}(D)} = \left(\frac{F}{P}\right)^{1/m} - 1 = \left(\frac{6.66}{3.53}\right)^{1/5} - 1 \cong 0.1354$$

$$\text{for gasoline (otto) } g_{\text{annual}(O)} = \left(\frac{F}{P}\right)^{1/m} - 1 = \left(\frac{7.14}{4.29}\right)^{1/5} - 1 \cong 0.1072$$

<https://www.tppd.com.tr/tr/gecmis-akaryakit-fiyatlari?id=55&county=681&StartDate=10.12.2015&EndDate=10.12.2020>

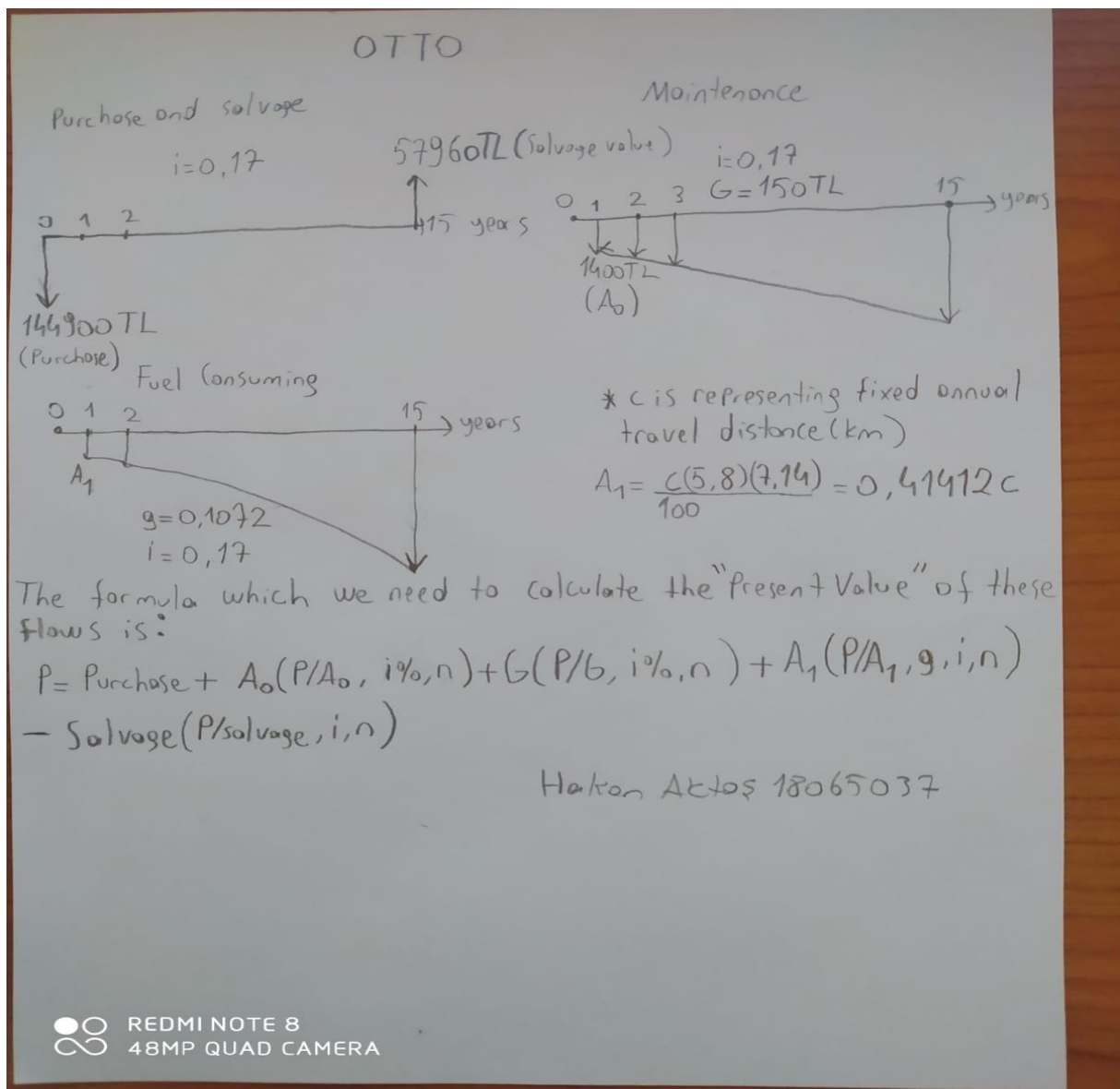
	<i>OTTO</i>		<i>DIESEL</i>	
Vehicle Purchase Price (TL)		144900₺		179900₺
Fuel Consumption (lt/100 km)		5.8₺		4.05₺
Fuel Price (TL/lt)		7.14₺		6.66 ₺
Annual Fuel Price Escalation [%]		10.72		13.54
Annual Maintenance cost	1400 TL		1900 TL	
Maintenance Cost Change	It will increase by 150 TL every year		It will increase 15% every year	
Salvage Value	40% of the purchase price		50% of the purchase price	

next page.

a.

For both of otto and diesel cases we can model this cash flow in 3 separate cash flow. These are :

1- purchase and salvage flow , 2- maintenance flow , 3- consumption flow.



Then we get

$$\begin{aligned} \rightarrow P = & 144800 + 1400 \left[\frac{(1+0,17)^{15} - 1}{0,17(1+0,17)^{15}} \right] + 150 \left[\frac{(1+0,17)^{15} - (0,17)(15) - 1}{(0,17)^2(1+0,17)^{15}} \right] \\ & + 0,41412 \left[\frac{1 - (1+0,1072)(1+0,17)^{-15}}{0,17 - 0,1072} \right] - 57960(1+0,17)^{-15} \\ & (i \neq g) \end{aligned}$$

\rightarrow The P function, $P(c) \cong 3,7118c + 156296,0832 \text{ TL}$

Hakan Aktaş

18065037



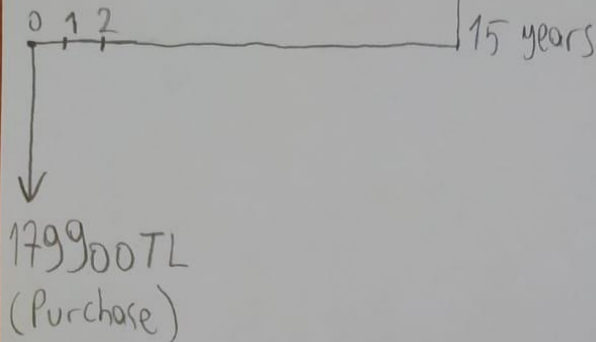
REDMI NOTE 8
48MP QUAD CAMERA

Diesel

Purchase and Salvage

$$i=0,17$$

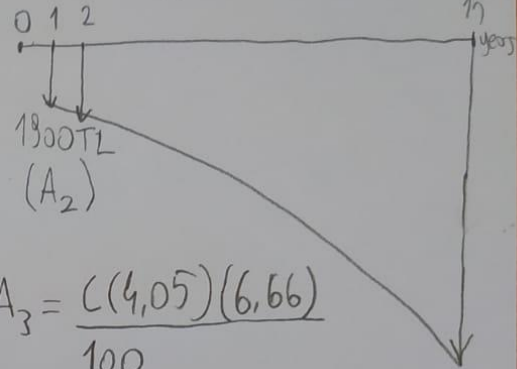
(Salvage)
89950 TL



Maintenance

$$i=0,17$$

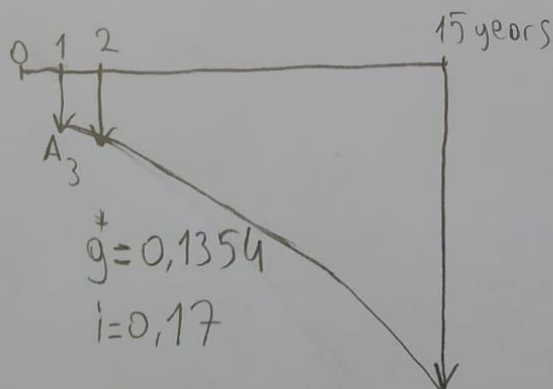
$$g=0,15$$



$$A_3 = \frac{(4,05)(6,66)}{100}$$

$$\rightarrow A_3 = 0,26973$$

Fuel Consuming



So it's the same problem again
Only difference is about maintenance flow. At the maintenance flow we have a geometric serie. It was arithmetic serie in our previous problem.

$$P = \text{Purchase} + A_2(P/A_2, g, i, n) + A_3(P/A_3, g, i, n) - \text{Salvage} \rightarrow$$

$$\rightarrow -\text{Salvage}(P/\text{salvage}, i, n)$$

Hakan Aktaş 18065037

Then we get

$$\rightarrow P = 179900 + 1900 \left[\frac{1 - (1+0,15)^{15} (1+0,17)^{-15}}{0,17 - 0,15} \right]$$

$$+ 0,26973c \left[\frac{1 - (1+0,1354)^{15} (1+0,17)^{-15}}{0,17 - 0,1354} \right] - 89950(1+0,17)^{-15}$$

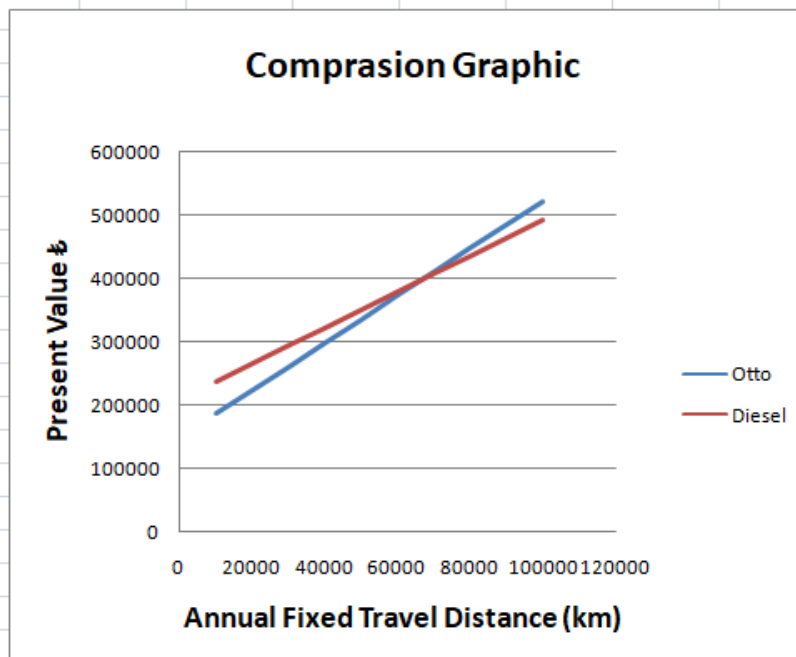
The P function, $P(c) \approx 2,8263c + 210084,6562 \text{ TL}$

Hakan Aktaş

18065037

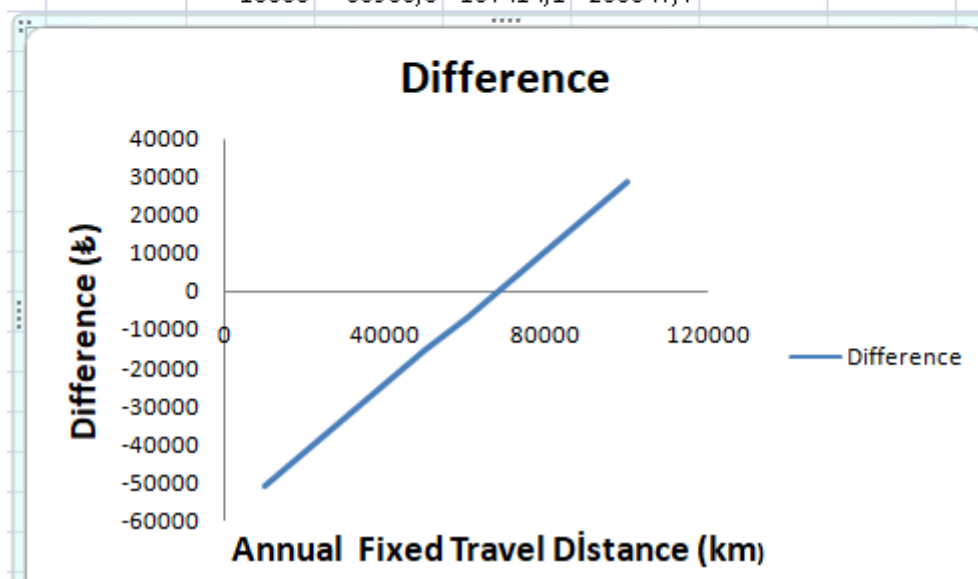


REDMI NOTE 8
AI QUAD CAMERA



KM	Otto	Diesel
100000	521476,1	492714,7
90000	484358,1	464451,7
80000	447240,1	436188,7
70000	410122,1	407925,7
60000	373004,1	379662,7
50000	335886,1	351399,7
40000	298768,1	323136,7
30000	261650,1	294873,7
20000	224532,1	266610,7
10000	187414,1	238347,7

KM	Difference	Otto	Diesel
100000	28761,43	521476,1	492714,7
90000	19906,43	484358,1	464451,7
80000	11051,43	447240,1	436188,7
70000	2196,427	410122,1	407925,7
60000	-6658,57	373004,1	379662,7
50000	-15513,6	335886,1	351399,7
40000	-24368,6	298768,1	323136,7
30000	-33223,6	261650,1	294873,7
20000	-42078,6	224532,1	266610,7
10000	-50933,6	187414,1	238347,7

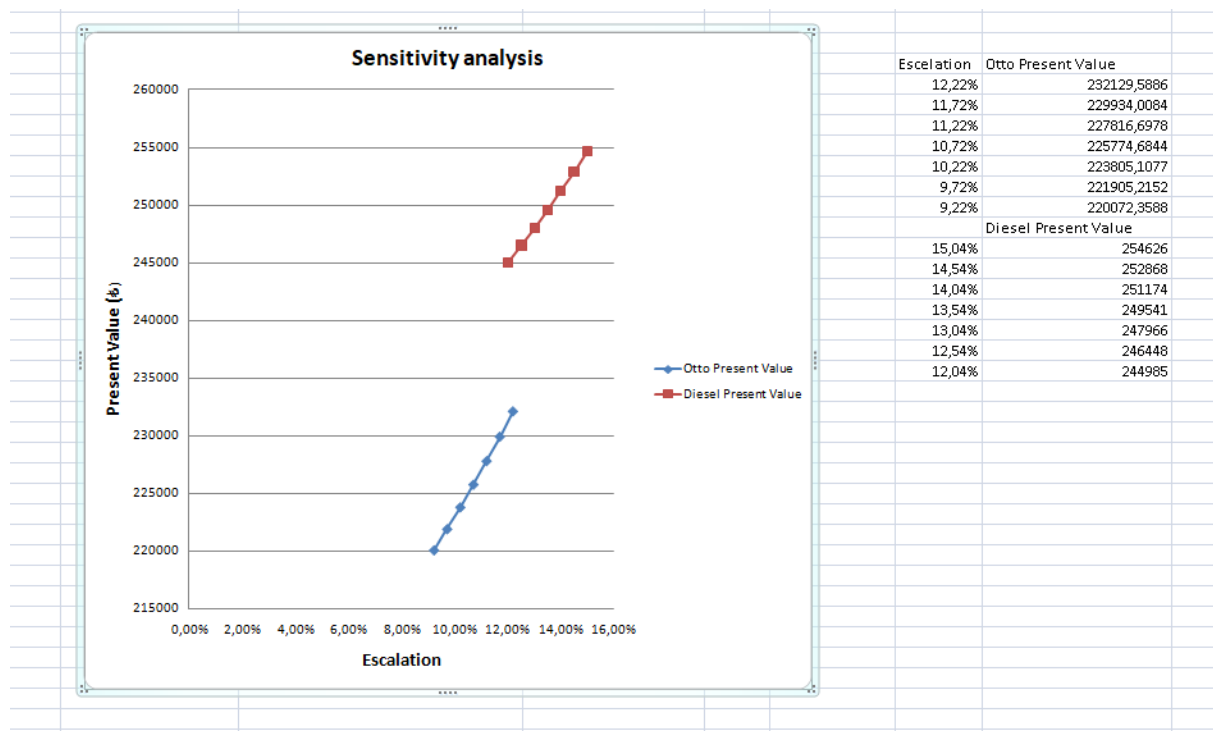


if we calculate the intervals about which vehicle is advantageous.

we get this equation $\text{Otto}_{\text{price}} - \text{Diesel}_{\text{price}} = 0.8854c - 59788.573$ and this equation tells that at the beginning Otto vehicle is more efficient compare to the diesel vehicle. After the $59788.573/0.8854 = 67527.18884$ fixed annual travel distance diesel vehicle becomes more efficient compare to the otto vehicle. In addition to that graphics are proving that this conclusion is correct.

b.

To make a sensitivity analysis we need a "constant" fixed travel value and it is assumed as 20000km in our calculations.



1-Otto tables

Otto					
discount rate	0,17	fuel consumption (lt/100km)	5,80	Annual Fuel Price Escalation	0,1072
annual fixed kr	20000	fuel price	7,14	Maintenance Cost	1400+150(each year)£
Today's Values					
years	Purchase£	Fuel Consumption£	Maintenance£	Salvage£	Total Todays Value£
0	144900	0	0	0	225774,6844
1	0	7078,974359	1837,606838	0	not necessary
2	0	13777,98326	3521,333144	0	not necessary
3	0	20117,42142	4960,415458	0	not necessary
4	0	26116,58889	6190,400341	0	not necessary
5	0	31793,74976	7241,669472	0	not necessary
6	0	37166,1878	8140,190097	0	not necessary
7	0	42250,25909	8908,156443	0	not necessary
8	0	47061,44176	9564,537935	0	not necessary
9	0	51614,38318	10125,54776	0	not necessary
10	0	55922,94449	10605,04333	0	not necessary
11	0	60000,24286	11014,86861	0	not necessary
12	0	63858,69136	11365,14662	0	not necessary
13	0	67510,03682	11664,52954	0	not necessary
14	0	70965,39552	11920,41238	0	not necessary
15	0	74235,28711	12139,11566	5499,718369	not necessary

		Otto			
discount rate	0,17	fuel consumption (lt/100km	5,80	Annual Fuel Price Escalation	0,1022
annual fixed kr	20000	fuel price	7,14	Maintenance Cost	1400+150(each year)€
		Today's Values			
Years	Purchase€	Fuel Consumption €	Maintenance€	Salvage €	Total Todays Value €
0	144900	0	0	0	223805,1077
1	0	7078,974359	1837,606838	0	0 not necessary
2	0	13747,73123	3521,333144	0	0 not necessary
3	0	20030,04219	4960,415458	0	0 not necessary
4	0	25948,30128	6190,400341	0	0 not necessary
5	0	31523,60485	7241,669472	0	0 not necessary
6	0	36775,82672	8140,190097	0	0 not necessary
7	0	41723,68907	8908,156443	0	0 not necessary
8	0	46384,82914	9564,537935	0	0 not necessary
9	0	50775,86212	10125,54776	0	0 not necessary
10	0	54912,44036	10605,04333	0	0 not necessary
11	0	58809,30921	11014,86861	0	0 not necessary
12	0	62480,35949	11365,14662	0	0 not necessary
13	0	65938,67712	11664,52954	0	0 not necessary
14	0	69196,58968	11920,41238	0	0 not necessary
15	0	72265,71038	12139,11566	5499,718369	not necessary

		Otto			
discount rate	0,17	fuel consumption (lt/100km	5,80	Annual Fuel Price Escalation	0,0972
annual fixed kr	20000	fuel price	7,14	Maintenance Cost	1400+150(each year)€
		Today's Values			
Years	Purchase€	Fuel Consumption €	Maintenance€	Salvage €	Total Todays Value €
0	144900	0	0	0	221905,2152
1	0	7078,974359	1837,606838	0	0 not necessary
2	0	13717,4792	3521,333144	0	0 not necessary
3	0	19942,92152	4960,415458	0	0 not necessary
4	0	25781,00299	6190,400341	0	0 not necessary
5	0	31255,82605	7241,669472	0	0 not necessary
6	0	36389,99345	8140,190097	0	0 not necessary
7	0	41204,70155	8908,156443	0	0 not necessary
8	0	45719,82782	9564,537935	0	0 not necessary
9	0	49954,01289	10125,54776	0	0 not necessary
10	0	53924,73756	10605,04333	0	0 not necessary
11	0	57648,39491	11014,86861	0	0 not necessary
12	0	61140,35803	11365,14662	0	0 not necessary
13	0	64415,04345	11664,52954	0	0 not necessary
14	0	67485,97066	11920,41238	0	0 not necessary
15	0	70365,81795	12139,11566	5499,718369	not necessary

		Otto			
discount rate	0,17	fuel consumption (lt/100km	5,80	Annual Fuel Price Escalation	0,0922
annual fixed kr	20000	fuel price	7,14	Maintenance Cost	1400+150(each year)€
		Today's Values			
Years	Purchase€	Fuel Consumption €	Maintenance€	Salvage €	Total Todays Value €
0	144900	0	0	0	220072,3588
1	0	7078,974359	1837,606838	0	0 not necessary
2	0	13687,22718	3521,333144	0	0 not necessary
3	0	19856,05942	4960,415458	0	0 not necessary
4	0	25614,69068	6190,400341	0	0 not necessary
5	0	30990,39758	7241,669472	0	0 not necessary
6	0	36008,64293	8140,190097	0	0 not necessary
7	0	40693,19642	8908,156443	0	0 not necessary
8	0	45066,24712	9564,537935	0	0 not necessary
9	0	49148,50864	10125,54776	0	0 not necessary
10	0	52959,31721	10605,04333	0	0 not necessary
11	0	56516,72329	11014,86861	0	0 not necessary
12	0	59837,57708	11365,14662	0	0 not necessary
13	0	62937,60828	11664,52954	0	0 not necessary
14	0	65831,50065	11920,41238	0	0 not necessary
15	0	68532,96155	12139,11566	5499,718369	not necessary

		Otto			
discount rate	0,17	fuel consumption (lt/100km	5,80	Annual Fuel Price Escalation	0,1122
annual fixed kr	20000	fuel price	7,14	Maintenance Cost	1400+150(each year)€
		Today's Values			
Years	Purchase€	Fuel Consumption €	Maintenance€	Salvage €	Total Todays Value €
0	144900	0	0	0	227816,6978
1	0	7078,974359	1837,606838	0	not necessary
2	0	13808,23528	3521,333144	0	not necessary
3	0	20205,05922	4960,415458	0	not necessary
4	0	26285,86911	6190,400341	0	not necessary
5	0	32066,2766	7241,669472	0	not necessary
6	0	37561,12208	8140,190097	0	not necessary
7	0	42784,5128	8908,156443	0	not necessary
8	0	47749,8591	9564,537935	0	not necessary
9	0	52469,90879	10125,54776	0	not necessary
10	0	56956,77996	10605,04333	0	not necessary
11	0	61221,99203	11014,86861	0	not necessary
12	0	65276,49533	11365,14662	0	not necessary
13	0	69130,69924	11664,52954	0	not necessary
14	0	72794,49888	11920,41238	0	not necessary
15	0	76277,30056	12139,11566	5499,718369	not necessary

		Otto			
discount rate	0,17	fuel consumption (lt/100km	5,80	Annual Fuel Price Escalation	0,1172
annual fixed kr	20000	fuel price	7,14	Maintenance Cost	1400+150(each year)€
		Today's Values			
Years	Purchase€	Fuel Consumption €	Maintenance€	Salvage €	Total Todays Value €
0	144900	0	0	0	229934,0084
1	0	7078,974359	1837,606838	0	not necessary
2	0	13838,48731	3521,333144	0	not necessary
3	0	20292,95558	4960,415458	0	not necessary
4	0	26456,14527	6190,400341	0	not necessary
5	0	32341,20128	7241,669472	0	not necessary
6	0	37960,67527	8140,190097	0	not necessary
7	0	43326,55249	8908,156443	0	not necessary
8	0	48450,2773	9564,537935	0	not necessary
9	0	53342,77761	10125,54776	0	not necessary
10	0	58014,48816	10605,04333	0	not necessary
11	0	62475,3728	11014,86861	0	not necessary
12	0	66734,94572	11365,14662	0	not necessary
13	0	70802,29176	11664,52954	0	not necessary
14	0	74686,08577	11920,41238	0	not necessary
15	0	78394,61113	12139,11566	5499,718369	not necessary

		Otto			
discount rate	0,17	fuel consumption (lt/100km	5,80	Annual Fuel Price Escalation	0,1222
annual fixed kr	20000	fuel price	7,14	Maintenance Cost	1400+150(each year)€
		Today's Values			
Years	Purchase€	Fuel Consumption €	Maintenance€	Salvage €	Total Todays Value €
0	144900	0	0	0	232129,5886
1	0	7078,974359	1837,606838	0	not necessary
2	0	13868,73934	3521,333144	0	not necessary
3	0	20381,1105	4960,415458	0	not necessary
4	0	26627,42069	6190,400341	0	not necessary
5	0	32618,53974	7241,669472	0	not necessary
6	0	38364,89341	8140,190097	0	not necessary
7	0	43876,48153	8908,156443	0	not necessary
8	0	49162,89536	9564,537935	0	not necessary
9	0	54233,33434	10125,54776	0	not necessary
10	0	59096,62205	10605,04333	0	not necessary
11	0	63761,22159	11014,86861	0	not necessary
12	0	68235,25031	11365,14662	0	not necessary
13	0	72526,49393	11664,52954	0	not necessary
14	0	76642,42008	11920,41238	0	not necessary
15	0	80590,19129	12139,11566	5499,718369	not necessary

2-Diesel Tables

			Diesel				
		0,17	fuel consumption (lt/100l)	4,05 £	Annual Fuel Price Escalati	0,1354	
		20000	fuel price	6,66 £	Maintenance Cost	1900 (%15 increase every year)	
			Today's Values				
Years	Purchase£		Fuel Consumption £	Maintenance£	Salvage £	Total Todays Value £	
0	179900		0	0	0	249541	
1	0		4610,769231	1623,931624	0	not necessary	
2	0		9085,185799	3220,103733	0	not necessary	
3	0		13427,28201	4788,990849	0	not necessary	
4	0		17640,97094	6331,059381	0	not necessary	
5	0		21730,04992	7846,767768	0	not necessary	
6	0		25698,204	9336,566609	0	not necessary	
7	0		29549,00925	10800,8988	0	not necessary	
8	0		33285,93598	12240,19968	0	not necessary	
9	0		36912,35189	13654,89712	0	not necessary	
10	0		40431,52508	15045,4117	0	not necessary	
11	0		43846,62698	16412,1568	0	not necessary	
12	0		47160,73528	17755,53873	0	not necessary	
13	0		50376,83661	19075,95688	0	not necessary	
14	0		53497,82931	20373,80377	0	not necessary	
15	0		56526,52598	21649,46524	8535,190947	not necessary	

			Diesel				
		0,17	fuel consumption (lt/100l)	4,05 £	Annual Fuel Price Escalati	0,1304	
		20000	fuel price	6,66 £	Maintenance Cost	1900 (%15 increase every year)	
			Today's Values				
Years	Purchase£		Fuel Consumption £	Maintenance£	Salvage £	Total Todays Value £	
0	179900		0	0	0	247966	
1	0		4610,769231	1623,931624	0	not necessary	
2	0		9065,481657	3220,103733	0	not necessary	
3	0		13369,4192	4788,990849	0	not necessary	
4	0		17527,68501	6331,059381	0	not necessary	
5	0		21545,20952	7846,767768	0	not necessary	
6	0		25426,75627	9336,566609	0	not necessary	
7	0		29176,9276	10800,8988	0	not necessary	
8	0		32800,17005	12240,19968	0	not necessary	
9	0		36300,77968	13654,89712	0	not necessary	
10	0		39682,90714	15045,4117	0	not necessary	
11	0		42950,56259	16412,1568	0	not necessary	
12	0		46107,62047	17755,53873	0	not necessary	
13	0		49157,82408	19075,95688	0	not necessary	
14	0		52104,79004	20373,80377	0	not necessary	
15	0		54952,01253	21649,46524	8535,190947	not necessary	

			Diesel				
		0,17	fuel consumption (lt/100l)	4,05 £	Annual Fuel Price Escalati	0,1254	
		20000	fuel price	6,66 £	Maintenance Cost	1900 (%15 increase every year)	
			Today's Values				
Years	Purchase£		Fuel Consumption £	Maintenance£	Salvage £	Total Todays Value £	
0	179900		0	0	0	246448	
1	0		4610,769231	1623,931624	0	not necessary	
2	0		9045,777515	3220,103733	0	not necessary	
3	0		13311,7248	4788,990849	0	not necessary	
4	0		17415,05563	6331,059381	0	not necessary	
5	0		21361,9689	7846,767768	0	not necessary	
6	0		25158,42718	9336,566609	0	not necessary	
7	0		28810,16576	10800,8988	0	not necessary	
8	0		32322,70132	12240,19968	0	not necessary	
9	0		35701,34023	13654,89712	0	not necessary	
10	0		38951,18658	15045,4117	0	not necessary	
11	0		42077,14989	16412,1568	0	not necessary	
12	0		45083,95256	17755,53873	0	not necessary	
13	0		47976,13693	19075,95688	0	not necessary	
14	0		50758,07222	20373,80377	0	not necessary	
15	0		53433,96109	21649,46524	8535,190947	not necessary	

		Diesel				
		0,17 fuel consumption (lt/100l)		4,05 € Annual Fuel Price Escalati	0,1204	
		20000 fuel price		6,66 € Maintenance Cost	1900 (%15 increase every year)	
		Today's Values				
Years	Purchase€	Fuel Consumption €	Maintenance€	Salvage €	Total Todays Value €	
0	179900	0	0	0	244985	
1	0	4610,769231	1623,931624	0	not necessary	
2	0	9026,073373	3220,103733	0	not necessary	
3	0	13254,19881	4788,990849	0	not necessary	
4	0	17303,08064	6331,059381	0	not necessary	
5	0	21180,31756	7846,767768	0	not necessary	
6	0	24893,18615	9336,566609	0	not necessary	
7	0	28448,6545	10800,8988	0	not necessary	
8	0	31853,3953	12240,19968	0	not necessary	
9	0	35113,79837	13654,89712	0	not necessary	
10	0	38235,98264	15045,4117	0	not necessary	
11	0	41225,80765	16412,1568	0	not necessary	
12	0	44088,88453	17755,53873	0	not necessary	
13	0	46830,58651	19075,95688	0	not necessary	
14	0	49456,05909	20373,80377	0	not necessary	
15	0	51970,22957	21649,46524	8535,190947	not necessary	

		Diesel				
		0,17 fuel consumption (lt/100l)		4,05 € Annual Fuel Price Escalati	0,1404	
		20000 fuel price		6,66 € Maintenance Cost	1900 (%15 increase every year)	
		Today's Values				
Years	Purchase€	Fuel Consumption €	Maintenance€	Salvage €	Total Todays Value €	
0	179900	0	0	0	251174	
1	0	4610,769231	1623,931624	0	not necessary	
2	0	9104,889941	3220,103733	0	not necessary	
3	0	13485,31324	4788,990849	0	not necessary	
4	0	17754,91557	6331,059381	0	not necessary	
5	0	21916,50061	7846,767768	0	not necessary	
6	0	25972,80111	9336,566609	0	not necessary	
7	0	29926,48067	10800,8988	0	not necessary	
8	0	33780,13552	12240,19968	0	not necessary	
9	0	37536,29619	13654,89712	0	not necessary	
10	0	41197,42921	15045,4117	0	not necessary	
11	0	44765,9387	16412,1568	0	not necessary	
12	0	48244,16794	17755,53873	0	not necessary	
13	0	51634,40095	19075,95688	0	not necessary	
14	0	54938,86397	20373,80377	0	not necessary	
15	0	58159,7269	21649,46524	8535,190947	not necessary	

		Diesel				
		0,17 fuel consumption (lt/100l)		4,05 € Annual Fuel Price Escalati	0,1454	
		20000 fuel price		6,66 € Maintenance Cost	1900 (%15 increase every year)	
		Today's Values				
Years	Purchase€	Fuel Consumption €	Maintenance€	Salvage €	Total Todays Value €	
0	179900	0	0	0	252868	
1	0	4610,769231	1623,931624	0	not necessary	
2	0	9124,594083	3220,103733	0	not necessary	
3	0	13543,51287	4788,990849	0	not necessary	
4	0	17869,52106	6331,059381	0	not necessary	
5	0	22104,57216	7846,767768	0	not necessary	
6	0	26250,57859	9336,566609	0	not necessary	
7	0	30309,41258	10800,8988	0	not necessary	
8	0	34282,90698	12240,19968	0	not necessary	
9	0	38172,85612	13654,89712	0	not necessary	
10	0	41981,01658	15045,4117	0	not necessary	
11	0	45709,10803	16412,1568	0	not necessary	
12	0	49358,81396	17755,53873	0	not necessary	
13	0	52931,78249	19075,95688	0	not necessary	
14	0	56429,62706	20373,80377	0	not necessary	
15	0	59853,92721	21649,46524	8535,190947	not necessary	

		Diesel				
	0,17	fuel consumption (lt/100l	4,05 £	Annual Fuel Price Escalati	0,1504	
	20000	fuel price	6,66 £	Maintenance Cost	1900 (%15 increase every year)	
		Today's Values				
Years	Purchase£	Fuel Consumption£	Maintenance£	Salvage £	Total Todays Value £	
0	179900	0	0	0	254626	
1	0	4610,769231	1623,931624	0	not necessary	
2	0	9144,298225	3220,103733	0	not necessary	
3	0	13601,88092	4788,990849	0	not necessary	
4	0	17984,78958	6331,059381	0	not necessary	
5	0	22294,27516	7846,767768	0	not necessary	
6	0	26531,56764	9336,566609	0	not necessary	
7	0	30697,87642	10800,8988	0	not necessary	
8	0	34794,39063	12240,19968	0	not necessary	
9	0	38822,27947	13654,89712	0	not necessary	
10	0	42782,69257	15045,4117	0	not necessary	
11	0	46676,76028	16412,1568	0	not necessary	
12	0	50505,59404	17755,53873	0	not necessary	
13	0	54270,28665	19075,95688	0	not necessary	
14	0	57971,91262	20373,80377	0	not necessary	
15	0	61611,52844	21649,46524	8535,190947	not necessary	