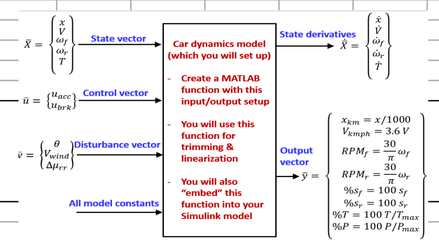
This document was exported from Numbers. Each table was converted to an Excel worksheet. All other objects on each Numbers sheet were placed on separate worksheets. Please be aware that formula calculations may differ in Excel.

Numbers Sheet Name	Numbers Table Name	Excel Worksheet Name
Trim Validation		
	Table 1	Trim Validation
Linearization Validation		
	Table 1	Linearization Validation
Trim result		
	Table 1	Trim result
Trim error		
	Table 1	Trim error
Linearization Result		
	Table 1	Linearization Result

			Speed sweep, no disturbances								Inclination angle sweep @ 112 km/h				Wind sweep @ 112 km/h			Friction sweep @ 112 km/h		
	Trim speed	(km/h)	25	50	75	100	125	150	175	200	112	112	112	112	112	112	112	112	112	112
Disturbances	Inclination angle	(deg)	0	0	0	0	0	0	0	0	-3	0	3	6	0	0	0	0	0	0
	Wind velocity	(m/s)	0	0	0	0	0	0	0	0	0	0	0	0	-10	0	10	0	0	0
	change in rolling friction	(-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.05	0	0.05
Controls	Throttle Setting	(-)	0.0553993	0.0969893	0.1654978	0.2581629	0.3832678	0.5492906	0.7649533	1.0392747	0.0578412	0.3136479	0.5759624	0.8443461	0.4043346	0.3136479	0.2485900	0.0697943	0.3136479	0.5611125
	Brake Setting	(-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
States	Distance	(m)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Speed	(m/s)	6.9444444	13.888888	20.833333	27.777777	34.722222	41.666666	48.611111	55.555555	31.111111	31.111111	31.111111	31.111111	31.111111	31.111111	31.111111	31.111111	31.111111	31.111111
	Front wheel angular speed	(rad/s)	23.824081	47.648163	71.472245	95.296327	119.12040	142.94449	166.76857	190.59265	106.73188	106.73188	106.73188	106.73188	106.73188	106.73188	106.73188	107.41653	106.73188	106.04287
	Rear wheel angular speed	(rad/s)	24.098828	48.244989	72.485229	96.865277	121.42969	146.22210	171.28593	196.66567	107.09646	108.63048	110.13536	111.67787	109.14649	108.63048	108.25307	107.84095	108.63048	109.43439
	Total motor torque	(Nm)	249.29707	271.39740	308.23129	359.79873	426.09973	507.13428	602.90239	713.40406	72.911577	389.78446	705.99424	1020.6742	500.10932	389.78446	310.01110	87.371598	389.78446	692.19733
Outputs	Distance	(km)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Speed	(km/h)	25	50	75	100	125	150	175	200	112	112	112	112	112	112	112	112	112	112
	Front wheel RPM	(RPM)	227.50322	455.00644	682.50967	910.01289	1137.5161	1365.0193	1592.5225	1820.0257	1019.2144	1019.2144	1019.2144	1019.2144	1019.2144	1019.2144	1019.2144	1025.7523	1019.2144	1012.6349
	Rear wheel RPM	(RPM)	230.12686	460.70571	692.18295	924.99526	1159.5681	1396.3182	1635.6602	1878.0188	1022.6959	1037.3447	1051.7152	1066.4451	1042.2722	1037.3447	1033.7407	1029.8052	1037.3447	1045.0215
	Front wheel % slip	(%)	-0.510634	-0.510634	-0.510634	-0.510634	-0.510634	-0.510634	-0.510634	-0.510634	-0.510634	-0.510634	-0.510634	-0.510634	-0.510634	-0.510634	-0.510634	0.1275577	-0.510634	-1.152887
	Rear wheel % slip	(%)	0.6367080	0.7355377	0.8994397	1.1273501	1.4180795	1.7705852	2.1842953	2.6594825	-0.170790	1.2591315	2.6618915	4.0997380	1.7401291	1.2591315	0.9073349	0.5231789	1.2591315	2.0084915
	Torque utilization, T/Tmax, %	(%)	5.5399349	6.0310534	6.8495843	7.9955274	9.4688830	11.269650	13.397831	15.853423	1.6202572	8.6618770	15.688761	22.681648	11.113540	8.6618770	6.8891357	1.9415910	8.6618770	15.382163
	Power utilization, P/Pmax, %	(%)	4.4501981	9.6989370	16.549789	25.816299	38.326785	54.929069	76.495334	103.92747	5.7841278	31.364797	57.596246	84.434615	40.433468	31.364797	24.859005	6.9794347	31.364797	56.111258
State Derivatives	d/dt (Distance)	(m/s)	6.9444444	13.888888	20.833333	27.777777	34.722222	41.666666	48.611111	55.555555	31.111111	31.111111	31.111111	31.111111	31.111111	31.111111	31.111111	31.111111	31.111111	31.111111
	d/dt (Speed)	(m/s/s)	-2.44E-14	-4.66E-15	-4.24E-15	5.67E-15	4.55E-15	-4.44E-15	-1.60E-15	1.07E-15	-6.95E-15	3.56E-15	-3.96E-15	-2.10E-14	-3.10E-15	3.56E-15	-3.25E-15	2.83E-15	3.56E-15	-4.49E-15
	d/dt (Front wheel angular speed)	(rad/s/s)	4.75E-12	2.13E-13	-1.03E-13	-7.03E-13	-3.32E-13	-1.03E-13	6.32E-14	1.97E-13	6.87E-13	-1.26E-13	6.63E-13	2.16E-12	6.71E-13	-1.26E-13	6.87E-13	-5.05E-13	-1.26E-13	5.53E-13
	d/dt (Rear wheel angular speed)	(rad/s/s)	-5.88E-13	5.84E-13	8.29E-13	-2.64E-13	-4.26E-13	8.68E-13	2.17E-13	-3.87E-13	4.86E-13	-4.86E-13	-1.18E-14	1.44E-12	-1.34E-13	-4.86E-13	-1.34E-13	1.58E-14	-4.86E-13	2.37E-13
	d/dt (Total motor torque)	(Nm/s)	0.00E+00	2.27E-12	0	0	-4.55E-12	-2.27E-12	4.55E-12	-4.55E-12	5.68E-13	0	0	0	-2.27E-12	0	0	0	0	0
Constants	Car mass	(kg)	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126
	Wheel inertia (each)	(kg.m2)	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
	CG-to-front-axle	(m)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
	CG-to-rear-axle	(m)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	CG-to-ground	(m)	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
	CG-to-drag-axis	(m)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Static Friction (nominal)	(-)	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	Tire constant 1	(-)	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Tire constant 2	(-)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
	Tire Radius	(m)	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
	Rolling friction coefficient	(-)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	Density	(kg/m3)	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225
	Drag area	(m2)	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
	Acc. due to gravity	(m/s/s)	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81
	Maximum Power	(W)	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000
	Maximum Torque	(Nm)	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
	Drivetrain time constant	(sec)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025



	Trim speed	(km/h)	112							
Disturbances	Inclination angle	(deg)	0							
	Wind velocity	(m/s)	0		A	0	1.0000000	0	0	0
	change in rolling friction	(-)	0			0	-2.5581132	0.3948452	0.3405619	0
Controls	Throttle Setting	(-)	0.3136479			0	224.15710	-65.362970	0.0000000	0
	Brake Setting	(-)	0			0	211.30796	-2.258663	-58.325018	0.2777777
States	Distance	(m)	0			0	0	0	-143.52685	-40.000000
	Speed	(m/s)	31.111111							
	Front wheel angular speed	(rad/s)	106.73188							
	Rear wheel angular speed	(rad/s)	108.63048		Bu	0	0			
	Total motor torque	(Nm)	389.78446			0	0			
Outputs	Distance	(km)	0			0	0			
	Speed	(km/h)	112			0	0			
	Front wheel RPM	(RPM)	1019.2144			49709.802	0			
	Rear wheel RPM	(RPM)	1037.3447							
	Front wheel % slip	(%)	-0.510634							
	Rear wheel % slip	(%)	1.2591315		Bw	0	0	0		
	Torque utilization, T/Tmax, %	(%)	8.6618770			-0.1712167	0.0152328	0		
	Power utilization, P/Pmax, %	(%)	31.364797			0	0	-896.69078		
State Derivatives	d/dt (Distance)	(m/s)	31.111111			0	0.0314606	-783.3807		
	d/dt (Speed)	(m/s/s)	3.56E-15			0	0	0		
	d/dt (Front wheel angular speed)	(rad/s/s)	-1.26E-13							
	d/dt (Rear wheel angular speed)	(rad/s/s)	-4.86E-13							
	d/dt (Total motor torque)	(Nm/s)	0.00E+00		C	0.001	0	0	0	0
Constants	Car mass	(kg)	2126			0	3.5999999	0	0	0
	Wheel inertia (each)	(kg.m2)	1.8			0	0	9.5492965	0	0
	CG-to-front-axle	(m)	1.1			0	0	0	9.5492965	0
	CG-to-rear-axle	(m)	1.3			0	-3.1979055	0.9321428	0	0
	CG-to-ground	(m)	0.58			0	-3.2547914	0	0.9321428	0
	CG-to-drag-axis	(m)	0.2			0	0	0	0	0.0222222
	Static Friction (nominal)	(-)	0.8			0	0	0	0.2887292	0.0804670
	Tire constant 1	(-)	7							
	Tire constant 2	(-)	1.4							
	Tire Radius	(m)	0.29		Du	0	0			
	Rolling friction coefficient	(-)	0.04			0	0			
	Density	(kg/m3)	1.225			0	0			
	Drag area	(m2)	0.86			0	0			
	Acc. due to gravity	(m/s/s)	9.81			0	0			
	Maximum Power	(W)	135000			0	0			
	Maximum Torque	(Nm)	4500			0	0			
	Drivetrain time constant	(sec)	0.025			0	0			
					Dw	0	0	0		
						0	0	0		
						0	0	0		
						0	0	0		
						0	0	0		
						0	0	0		
						0	0	0		
						0	0	0		

			Speed sweep, no disturbances								Inclination angle sweep @ 112 km/h				Wind sweep @ 112 km/h			Friction sweep @ 112 km/h		
	Trim spee	(km/h)	25	50	75	100	125	150	175	200	112	112	112	112	112	112	112	112	112	112
isturbance	Inclinatior	(deg)	0	0	0	0	0	0	0	0	-3	0	3	6	0	0	0	0	0	0
	Wind velo	(m/s)	0	0	0	0	0	0	0	0	0	0	0	0	-10	0	10	0	0	0
	change in	(-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.05	0	0.05
Controls	Throttle S	(-)	0.05539934968555	0.095573001297024	0.162547328428985	0.252407085114913	0.372549757467000	0.530177782300133	0.732250000368870	0.985428132214130	-0.7224703215838	0.305847706675396	0.634043569673300	-1.1466359627975	0.390503473352500	0.305847706675396	0.244119526491738	0.305847706675396	0.305847706675396	0.305847706675396
	Brake Sett	(-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
States	Distance	(m)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Speed	(m/s)	6.94444444444444	13.8888888888889	20.8333333333333	27.7777777777778	34.7222222222222	41.6666666666667	48.6111111111111	55.5555555555556	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111
	Front whe	(rad/s)	24.0686384619201	48.1372769238065	72.2059153856257	96.2745538473441	120.343192308928	144.411830763961	168.480469224688	192.549107685446	107.827500303955	107.827500308923	107.827500313581	107.827500317883	107.827500303575	107.827500308923	107.827500309195	107.827500308923	107.827500308923	107.827500308923
	Rear whee	(rad/s)	23.7938917407109	47.540451285631	71.1929312381728	94.7056033071857	118.033908622158	141.134216626814	163.963106521943	186.476087032209	103.189829694739	105.928900975212	112.348964738351	118.180255489264	105.412888233355	105.928900975212	106.306307273876	105.928900975212	105.928900975212	105.928900975212
	Total mot	(Nm)	249.297073584877	271.397406339506	308.231294263889	359.798737358025	426.099735621914	507.134289055556	602.902397658951	713.404061432099	-945.18513793697	389.784468839506	761.875128135330	-1309.8284001571	500.109329950615	389.784468839506	310.011107728395	389.784468839506	389.784468839506	389.784468839506
Outputs	Distance	(km)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Speed	(km/h)	25	50	75	100	125	150	175	200	112	112	112	112	112	112	112	112	112	112
	Front whe	(RPM)	229.838567082378	459.677134164434	689.515701245848	919.3542683263	1149.19283540547	1379.03140242208	1608.86996949306	1838.70853656435	1029.67678047704	1029.67678052448	1029.67678056960	1029.67678061004	1029.67678047515	1029.67678052448	1029.67678052708	1029.67678052448	1029.67678052448	1029.67678052448
	Rear whee	(RPM)	227.214929155653	453.977869135658	679.842415185397	904.371894290325	1127.14080058041	1347.73249293359	1565.73233326021	1780.71546117664	985.390288363714	1011.54649238982	1072.853853619	1128.538310218760	1006.618933675	1011.54649238982	1015.150457069	1011.54649238982	1011.54649238982	1011.54649238982
	Front whe	(%)	-0.51063421697834	-0.51063421690801	-0.51063421679095	-0.51063421662721	-0.51063421641660	-0.51063421171660	-0.51063421175650	-0.51063421180300	-0.51063421190130	-0.51063421653201	-0.51063422087800	-0.51063422488410	-0.51063421171300	-0.51063421653201	-0.51063421678530	-0.51063421653201	-0.51063421653201	-0.51063421653201
	Rear whee	(%)	0.636708090791477	0.735537715602435	0.899439716463399	1.12735014729811	1.41807951877388	1.77058522773753	2.18429530919535	2.65948256918676	3.81233732026114	1.25913159096291	-4.72528498824700	-10.160881009635	1.74012918247760	1.25913159096291	0.907335005422298	1.25913159096291	1.25913159096291	1.25913159096291
	Torque uti	(%)	5.53993496855281	6.03105347421125	6.84958431697531	7.99552749684499	9.46888301382030	11.2696508679012	13.3978310590878	15.8534235873800	-21.004114176377	8.66187708532236	16.9305584030070	-29.107297781269	11.1135406655690	8.66187708532236	6.88913572729767	8.66187708532236	8.66187708532236	8.66187708532236
	Power util	(%)	-0.00000006241357	-0.00000008192829	-0.00000012102656	-0.00000018949607	-0.00000029907030	0.00000005922819	0.00000008441496	0.00000010872298	0.00000010719584	-0.00000023628788	0.00000025839200	0.00000011519513	0.00000005737550	-0.00000023628788	-0.00000012312499	-0.00000023628788	-0.00000023628788	-0.00000023628788
te Derivati	d/dt (Dist	(m/s)	6.94444444444444	13.8888888888889	20.8333333333333	27.7777777777778	34.7222222222222	41.6666666666667	48.6111111111111	55.5555555555556	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111	31.1111111111111
	d/dt (Spe	(m/s/s)	-1.47E-12	4.38E-10	1.21E-09	2.34E-09	3.82E-09	-7.16E-10	-9.17E-10	-1.04E-09	7.68E-10	3.01E-09	3.57E-09	-4.94E-09	-6.99E-10	3.01E-09	1.25E-09	3.01E-09	3.01E-09	3.01E-09
	d/dt (Fror	(rad/s/s)	3.38E-07	3.33E-07	3.23E-07	3.10E-07	2.93E-07	-3.50E-08	-3.19E-08	-2.84E-08	2.15E-08	3.02E-07	-6.58E-07	9.64E-07	-3.53E-08	3.02E-07	3.23E-07	3.02E-07	3.02E-07	3.02E-07
	d/dt (Rea	(rad/s/s)	-3.38E-07	-4.08E-07	-5.30E-07	-7.11E-07	-9.48E-07	1.58E-07	1.89E-07	2.06E-07	-1.53E-07	-8.18E-07	4.58E-08	-1.19E-07	1.55E-07	-8.18E-07	-5.36E-07	-8.18E-07	-8.18E-07	-8.18E-07
	d/dt (Tota	(Nm/s)	3.93E-09	-2.66E-08	-0.00000003885361	-0.00000006005393	-9.39E-08	1.86E-08	2.67E-08	3.54E-08	-4.18E-08	-0.00000007449216	-0.00000001018	-0.00000000017371	1.80E-08	-0.00000007449216	-0.00000003950390	-0.00000007449216	-0.00000007449216	-0.00000007449216
Constants	Car mass	(kg)	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126
	Wheel ine	(kg.m2)	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
	CG-to-fror	(m)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
	CG-to-rea	(m)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	CG-to-gro	(m)	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
	CG-to-dra	(m)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Static Fric	(-)	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	Tire const	(-)	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Tire const	(-)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
	Tire Radiu	(m)	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
	Rolling fri	(-)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	Density	(kg/m3)	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225
	Drag area	(m2)	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
	Acc. due t	(m/s/s)	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81
	Maximum	(W)	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000
	Maximum	(Nm)	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
	Drivetrain	(sec)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025

			Speed sweep, no disturbances								Inclination angle sweep @ 112 km/h				Wind sweep @ 112 km/h			Friction sweep @ 112 km/h		
	Trim spee	(km/h)	25	50	75	100	125	150	175	200	112	112	112	112	112	112	112	112	112	112
isturbance	Inclinatior	(deg)	0	0	0	0	0	0	0	0	-3	0	3	6	0	0	0	0	0	0
	Wind velo	(m/s)	0	0	0	0	0	0	0	0	0	0	0	0	-10	0	10	0	0	0
	change in	(-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0.05	0	0.05
Controls	Throttle S	(-)	0.000000000000	0.001416368861	0.002950569036	0.005755912552	0.010718094666	0.019112909350	0.032703342414	0.053846620329	0.780311599599	0.007800265761	0.058081108336	1.990982117345	0.013831210740	0.007800265761	0.004470526468	0.236053358945	0.007800265761	0.255264874428
	Brake Sett	(-)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
States	Distance	(m)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Speed	(m/s)	0.000000000000	0.000000000001	0.000000000003	0.000000000002	0.000000000002	0.000000000003	0.000000000000	0.000000000004	0.000000000001	0.000000000001	0.000000000001	0.000000000001	0.000000000001	0.000000000001	0.000000000001	0.000000000001	0.000000000001	0.000000000001
	Front whe	(rad/s)	0.244556616187	0.489113232342	0.733669848428	0.978226464415	1.222783080266	1.467339689567	1.711896304561	1.956452919588	1.095613635075	1.095613640043	1.095613644705	1.095613649003	1.095613643874	1.095613640043	1.095613640314	0.410963278333	1.095613640043	1.784621187953
	Rear whee	(rad/s)	0.304936823746	0.704538038540	1.292298436951	2.159674600613	3.395784269662	5.087888589078	7.322829106759	10.18958839371	3.906640275175	2.701585008545	2.213602196989	6.502375543921	3.733610509125	2.701585008545	1.946772416000	1.912057284829	2.701585008545	3.505496123112
	Total mot	(Nm)	0.000000000000	0.000000000002	0.000000000001	0.000000000002	0.000000000005	0.000000000004	0.000000000004	0.000000000001	1018.096715081	0.000000000001	55.88088172584	2330.502600990	0.000000000002	0.000000000001	0.000000000000	302.41287	0.000000000001	302.41287
Outputs	Distance	(km)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Speed	(km/h)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Front whe	(RPM)	2.335343659927	4.670687319533	7.006030978496	9.341374636498	11.67671829321	14.01206188737	16.34740553910	18.68274918474	10.46233954446	10.46233959190	10.46233963625	10.46233967746	10.46233954254	10.46233959190	10.46233959449	3.924410230560	10.46233959190	17.04187701655
	Rear whee	(RPM)	2.911932169803	6.727842685795	12.34054105144	20.62337328946	32.42735113433	48.58575731116	69.92786985470	97.30340165834	37.30566664056	25.79823649758	21.13834901403	62.09311257929	35.65335408643	25.79823649758	18.59030718488	18.25880210133	25.79823649758	33.47502215897
	Front whe	(%)	0.000000004756	0.000000004685	0.000000004568	0.000000004405	0.000000004194	0.000000000505	0.000000000465	0.000000000419	0.000000000320	0.000000000430	0.000000000865	0.000000001266	0.000000000508	0.000000000430	0.000000000456	0.638191948617	0.000000000430	0.642253459991
	Rear whee	(%)	0.000000005615	0.000000006733	0.000000008689	0.000000011555	0.000000015271	0.000000002523	0.000000003012	0.000000003279	3.983127812590	0.000000013245	7.387176500014	14.26061910154	0.000000002480	0.000000013245	0.000000008786	0.735952641423	0.000000013245	0.749359989975
	Torque uti	(%)	0.000000000000	0	0.000000000000	0.000000000000	0	0.000000000000	0.000000000000	0.000000000000	22.62437146256	0	1.241797371685	51.78894668868	0.000000000002	0	0.000000000000	6.720286	0	6.720286000000
	Power util	(%)	4.450198164593	9.698937097822	16.54978986752	25.81629956207	38.32678551239	54.92906910585	76.49533419356	103.9274751455	5.784127694375	31.36479747995	57.59624610780	84.43461533962	40.43346835192	31.36479747995	24.85900541917	6.979435009298	31.36479747995	56.11125834663
te Derivati	d/dt (Dist	(m/s)	0.000000000000	0.000000000001	0.000000000003	0.000000000002	0.000000000002	0.000000000003	0.000000000000	0.000000000004	0.000000000001	0.000000000001	0.000000000001	0.000000000001	0.000000000001	0.000000000001	0.000000000001	0.000000000001	0.000000000001	0.000000000001
	d/dt (Spe	(m/s/s)	1.44E-12	4.38E-10	1.21E-09	2.34E-09	3.82E-09	7.16E-10	9.17E-10	1.04E-09	7.68E-10	3.01E-09	3.57E-09	4.94E-09	6.98E-10	3.01E-09	1.25E-09	3.01E-09	3.01E-09	3.01E-09
	d/dt (Fror	(rad/s/s)	3.38E-07	3.33E-07	3.23E-07	3.10E-07	2.93E-07	3.50E-08	3.19E-08	2.84E-08	2.15E-08	3.02E-07	6.58E-07	9.64E-07	3.53E-08	3.02E-07	3.23E-07	3.02E-07	3.02E-07	3.02E-07
	d/dt (Rea	(rad/s/s)	3.38E-07	4.08E-07	5.30E-07	7.11E-07	9.48E-07	1.58E-07	1.89E-07	2.06E-07	1.53E-07	8.18E-07	4.58E-08	1.19E-07	1.55E-07	8.18E-07	5.36E-07	8.18E-07	8.18E-07	8.18E-07
	d/dt (Tota	(Nm/s)	3.93E-09	2.66E-08	0.000000038853	0.000000060053	9.39E-08	1.86E-08	2.67E-08	3.54E-08	4.18E-08	0.000000074492	0.000000001018	0.000000001737	1.80E-08	0.000000074492	0.000000039503	0.000000074492	0.000000074492	0.000000074492
Constants	Car mass	(kg)	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126	2126
	Wheel ine	(kg.m2)	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
	CG-to-fror	(m)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
	CG-to-rea	(m)	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	CG-to-gro	(m)	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
	CG-to-dra	(m)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	Static Fric	(-)	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	Tire const	(-)	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Tire const	(-)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
	Tire Radiu	(m)	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
	Rolling fri	(-)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	Density	(kg/m3)	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225	1.225
	Drag area	(m2)	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
	Acc. due t	(m/s/s)	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81	9.81
	Maximum	(W)	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000	135000
	Maximum	(Nm)	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500
	Drivetrain	(sec)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025

Linearization Result

A	0	342.222222222222	0	0	0	
	0	0.552688811870530	-39.1914100603803	-33.5978647227604	0	
	0	-122.260430556933	6806.38943306892	-111.244147772068	0	
	0	-875.946947926341	-94.4250001170157	5865.25179115281	1191.00809923182	
	0	0	0	816691.268044679	-171505.166289383	
Bu	0	0				
	0	0				
	0	0				
	0	0				
	260384.679581968	0				
Bw	0	0	0			
	-97.9365817305384	0.155883607204269	0			
	0	-0.170327673509263	0			
	0	-0.123941236103065	0			
	0	0	0			
C	0.00100000000000000	0	0	0	0	
	0	1232	0	0	0	
	0	0	11211.3588502583	0	0	
	0	0	0	11410.7920177614	0	
	0	-5211.34773174072	-1094.383023665555	0	0	
	0	-5304.049749309	0	-1113.85044735489	0	
	0	0	0	0	95.2806479385459	
	0	-252.911493206708	-27.263258159838	1693.46966964775	829.04234224885	
Du	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
	0	0				
Dw	0	0	0			
	0	0	0			
	0	0	0			
	0	0	0			
	0	0	0			
	0	0	0			
	0	0	0			
	0	-0.0357854584308370	0			