

Using the correlation w/o 1.5 kg: $y = -110.93x + 83.629$ to find the Force, y .

$$F = \mu * N$$

Vertical - two wheels

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
40	1	2.35	0.703430	5.5975	12.3404	27.8	61.2	0.2013
	2	3.567	0.696110	6.4095	14.1306	27.8	61.2	0.2306
	3	1.417	0.692140	6.8499	15.1014	27.8	61.2	0.2464
Average		-	0.697227	6.2856	13.8575	-	-	0.2261

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
45	1	1.55	0.706480	5.2592	11.5945	27.8	61.2	0.1892
	2	2.3	0.701600	5.8005	12.7879	27.8	61.2	0.2087
	3	1.283	0.696410	6.3762	14.0572	27.8	61.2	0.2294
Average		-	0.701497	5.8120	12.8132	-	-	0.2091

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
50	1	2.117	0.706790	5.2248	11.5187	27.8	61.2	0.1879
	2	2.15	0.718690	3.9047	8.6084	27.8	61.2	0.1405
	3	1.917	0.707400	5.1571	11.3695	27.8	61.2	0.1855
Average		-	0.710960	4.7622	10.4989	-	-	0.1713

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
55	1	1.8	0.711060	4.7511	10.4744	27.8	61.2	0.1709
	2	2.538	0.720210	3.7361	8.2367	27.8	61.2	0.1344
	3	1.858	0.719910	3.7694	8.3101	27.8	61.2	0.1356
Average		-	0.717060	4.0855	9.0071	-	-	0.1470

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				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
40	1	1.758	0.701600	5.8005	12.7879	27.8	61.2	0.2087
	2	1.867	0.709230	4.9541	10.9219	27.8	61.2	0.1782
	3	2.333	0.711360	4.7178	10.4010	27.8	61.2	0.1697
Average		-	0.707397	5.1575	11.3703	-	-	0.1855

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
45	1	2.333	0.714110	4.4128	9.7285	27.8	61.2	0.1587
	2	1.821	0.716550	4.1421	9.1318	27.8	61.2	0.1490
	3	1.258	0.724180	3.2957	7.2658	27.8	61.2	0.1186
Average		-	0.718280	3.9502	8.7087	-	-	0.1421

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
50	1	2.058	0.713810	4.4461	9.8019	27.8	61.2	0.1599
	2	1.871	0.713500	4.4804	9.8777	27.8	61.2	0.1612
	3	1.35	0.714420	4.3784	9.6527	27.8	61.2	0.1575
Average		-	0.713910	4.4350	9.7774	-	-	0.1595

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
55	1	2.008	0.725100	3.1937	7.0408	27.8	61.2	0.1149
	2	2.492	0.718990	3.8714	8.5351	27.8	61.2	0.1393
	3	1.2	0.717160	4.0744	8.9826	27.8	61.2	0.1466
Average		-	0.720417	3.7132	8.1861	-	-	0.1336

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Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
40	1	1.008	6.9794E-01	6.2065	13.6830	27.2	59.85	0.2282
	2	0.7	7.0618E-01	5.2925	11.6678	27.2	59.85	0.1946
	3	0.854	7.0160E-01	5.8005	12.7879	27.2	59.85	0.2133
Average		-	0.701907	5.7665	12.7129	-	-	0.2120

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
45	1	0.487	7.1442E-01	4.3784	9.6527	27.2	59.85	0.1610
	2	0.621	7.1320E-01	4.5137	9.9510	27.2	59.85	0.1659
	3	0.808	7.0465E-01	5.4622	12.0420	27.2	59.85	0.2008
Average		-	0.710757	4.7848	10.5486	-	-	0.1759

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
50	1	0.804	7.1228E-01	4.6158	10.1760	27.2	59.85	0.1697
	2	0.592	7.1686E-01	4.1077	9.0560	27.2	59.85	0.1510
	3	1.054	7.0221E-01	5.7328	12.6387	27.2	59.85	0.2108
Average		-	0.710450	4.8188	10.6236	-	-	0.1772

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
55	1	Does		83.6290	184.3702	27.2	59.85	3.0746
	2	not		83.6290	184.3702	27.2	59.85	3.0746
	3	work		83.6290	184.3702	27.2	59.85	3.0746
Average		!!	#DIV/0!	83.6290	184.3702	-	-	3.0746

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				F		N		mu
Angle	Run #	Time (s)	Voltage (V)	Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
40	1	Does		83.6290	184.3702	27.2	59.85	3.0746
	2	not		83.6290	184.3702	27.2	59.85	3.0746
	3	work		83.6290	184.3702	27.2	59.85	3.0746
	Average	!!	#DIV/0!	83.6290	184.3702	-	-	3.0746

				F		N		mu
Angle	Run #	Time (s)	Voltage (V)	Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
45	1	1.038	7.0557E-01	5.3601	11.8170	27.2	59.85	0.1971
	2	0.804	6.9702E-01	6.3086	13.9080	27.2	59.85	0.2319
	3	1.158	6.9794E-01	6.2065	13.6830	27.2	59.85	0.2282
	Average	-	0.700177	5.9584	13.1360	-	-	0.2191

				F		N		mu
Angle	Run #	Time (s)	Voltage (V)	Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
50	1	0.808	7.0313E-01	5.6308	12.4138	27.2	59.85	0.2070
	2	0.921	6.9824E-01	6.1732	13.6096	27.2	59.85	0.2270
	3	0.704	7.0618E-01	5.2925	11.6678	27.2	59.85	0.1946
	Average	-	0.702517	5.6988	12.5637	-	-	0.2095

				F		N		mu
Angle	Run #	Time (s)	Voltage (V)	Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
55	1	0.55	7.2357E-01	3.3634	7.4150	27.2	59.85	0.1237
	2	0.55	7.0953E-01	4.9208	10.8486	27.2	59.85	0.1809
	3	1.013	7.1564E-01	4.2431	9.3543	27.2	59.85	0.1560
	Average	-	0.716247	4.1758	9.2060	-	-	0.1535

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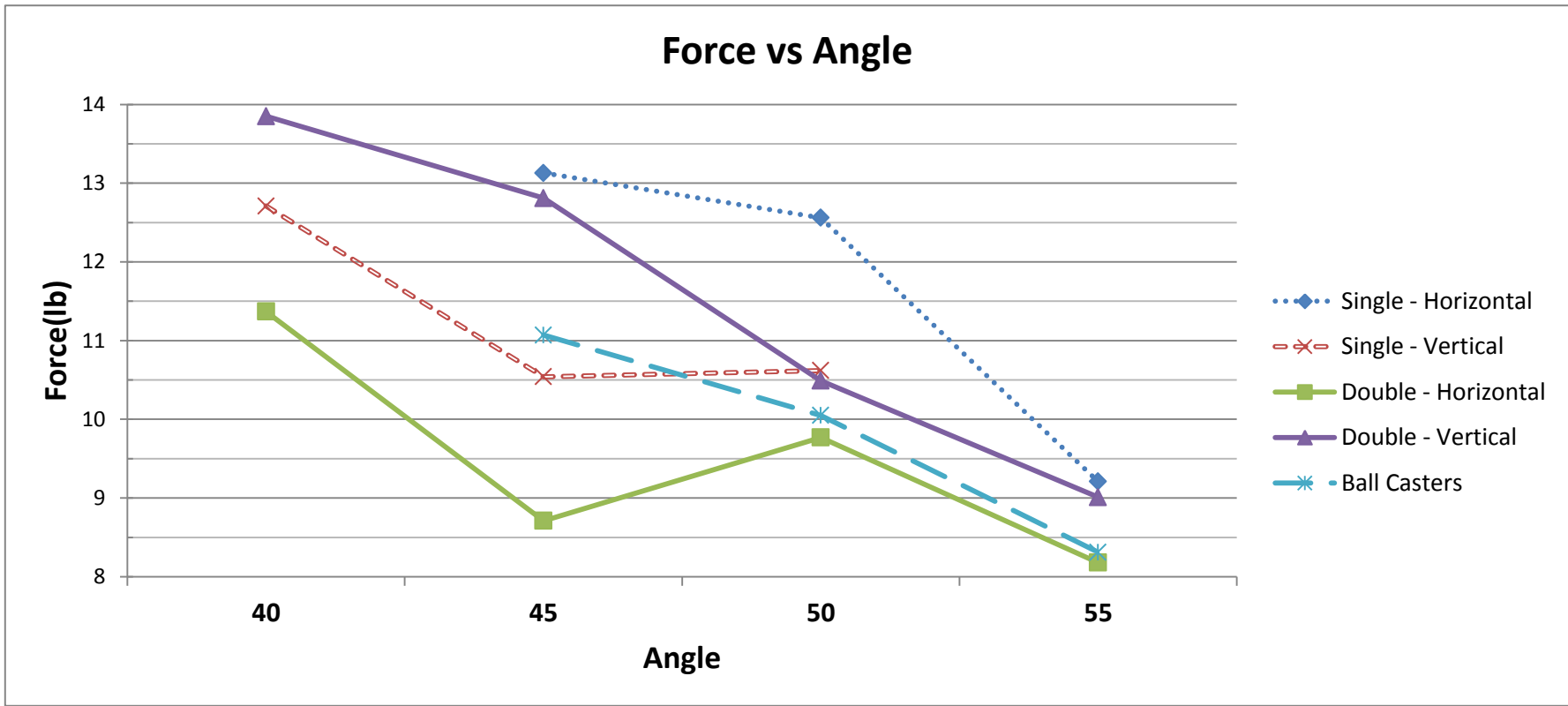
Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
40	1	Does		83.6290	184.3702	26.6	58.6	3.1439
	2	not		83.6290	184.3702	26.6	58.6	3.1439
	3	work		83.6290	184.3702	26.6	58.6	3.1439
	Average	!!		83.6290	184.3702	-	-	3.1439

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
45	1	1.013	7.0099E-01	5.8682	12.9371	26.6	58.6	0.2206
	2	0.688	7.1411E-01	4.4128	9.7285	26.6	58.6	0.1659
	3	0.471	7.1075E-01	4.7855	10.5502	26.6	58.6	0.1799
	Average	-	0.708617	5.0222	11.0719	-	-	0.1888

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
50	1	0.4	7.1960E-01	3.8038	8.3859	26.6	58.6	0.1430
	2	1.342	6.9824E-01	6.1732	13.6096	26.6	58.6	0.2321
	3	0.996	7.2052E-01	3.7017	8.1609	26.6	58.6	0.1392
	Average	-	0.712787	4.5596	10.0521	-	-	0.1714

Angle	Run #	Time (s)	Voltage (V)	F		N		mu
				Force (kg)	Force (lb)	Weight (kg)	Weight (lb)	Friction Coefficient
55	1	0.521	7.1686E-01	4.1077	9.0560	26.6	58.6	0.1544
	2	0.521	7.2174E-01	3.5664	7.8625	26.6	58.6	0.1341
	3	0.938	7.2113E-01	3.6340	8.0117	26.6	58.6	0.1366
	Average	-	0.719910	3.7694	8.3101	-	-	0.1417

Angle	Measurement	Single - Horizontal	Single - Vertical	Double - Horizontal	Double - Vertical	Ball Casters
40	Force (lb) -->		12.71	11.37	13.85	
	Friction -->		0.212	0.1855	0.2261	
45	Force (lb) -->	13.13	10.54	8.71	12.81	11.07
	Friction -->	0.2191	0.1759	0.1421	0.2091	0.1888
50	Force (lb) -->	12.56	10.62	9.77	10.49	10.05
	Friction -->	0.2095	0.1772	0.1595	0.1713	0.1714
55	Force (lb) -->	9.21		8.18	9.01	8.31
	Friction -->	0.1535		0.1336	0.147	0.1417



Angle	Single - Horizontal	Single - Vertical	Double - Horizontal	Double - Vertical	Ball Casters
40		0.212	0.1855	0.2261	
45	0.2191	0.1759	0.1421	0.2091	0.1888
50	0.2095	0.1772	0.1595	0.1713	0.1714
55	0.1535		0.1336	0.147	0.1417

