

Name: _____

Physics 11

Worksheet 1.3
Graphs of Wrath

The HSS physics teachers decided to do some drag racing with their cars. They collected the following data on Government Road:

Mr. Q's '93 Honda Civic		Mr. K's '79 Camaro		Mr. K's '80 Land Cruiser	
Time (s)	Velocity (m/s)	Time (s)	Velocity (m/s)	Time (s)	Velocity (m/s)
0	0	0	0	0	0
5	6	5	10	5	2
10	12	10	17	10	5
15	16	15	25	15	8
20	23	20	33	20	14
25	30	25	42	25	18
30	34	30	51	30	21
35	40	35	67	35	25
40	46	40	73	40	30
45	55	45	81	45	34
50	62	50	89	50	39

1. Do these data seem realistic? Why or why not?
2. You (the physics students of HSS) have been given the challenge of providing a beautiful graph of these data *on graph paper*. All three data sets go *on one graph* but each data set gets its own line of best fit. You will have to think a bit before choosing a scale that will work well with all three data sets.
3. Beside each of your lines, write the equation for that line.
4. In the space below, use your equation to estimate how fast Mr. Q's Civic would be going after 90 seconds.
5. For the lines you've drawn, what units does the slope have? (Hint, try substituting units into the slope equation).
6. Pretend that, while driving the Land Cruiser, Mr. K sees an adorable marmot in the road at $t=55$ s and slams on the brakes, suddenly stopping. Below, sketch what you think the whole Land Cruiser graph would look like with this new information.

Before you hand in this assignment, make sure you've included ALL the steps we discussed in the notes for section 1.3