

Racing through FUNctions – Worksheet 1



Set up a data collection device and a motion detector to collect distance data for 3 seconds. Use a hand-held vehicle that travels at a constant rate. (Tape a sheet of aluminum foil to the back of the vehicle to make it a better target if necessary). Put the vehicle right against the motion detector traveling away from the motion detector. Begin collecting data as soon as the vehicle is up to speed by not before it is about 1.5 feet away from the motion detector. Repeat this process until your graph appears linear on your screen.

The following is to be done on large graph paper...

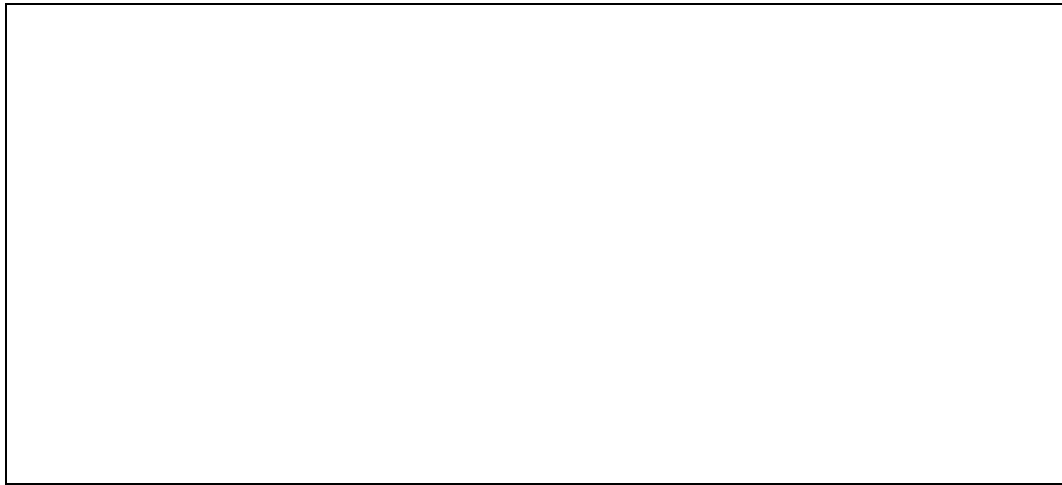
1. Complete the table like the one below using the trace feature on your calculator.

<i>Time</i>	<i>Distance from Motion Detector</i>
0	
.5	
1	
1.5	
2	
2.5	
3	

2. Create a scatterplot of this information (on paper and in your calculator)
3. Use any two points to find the rate at which your car is traveling...
4. When time was 0 (as you began to collect data), where was your car located?
5. Create a rule to describe the vehicle's distance from the motion detector in relation to elapsed time. Use your graphing calculator to graph this rule over your scatterplot. Make any adjustments if necessary.

Racing through FUNctions – Worksheet 2

1. Look at your graph on the large graph paper. Sketch the linear model below.



2. Imagine that a police car is at the origin at time 0. With a second color and a straight edge, map his rate that he must go to catch your vehicle in three seconds.
3. What average rate must the police car travel in order to catch your vehicle in three seconds? Justify your answer.
4. Write a rule describing the police car's distance from the motion detector in relation to elapsed time. Use your calculator's table feature to verify that the point that he met your car is in the table.

Racing through FUNctions – Worksheet 3

Take a walk through a gallery walk of the other group's trend lines from Worksheet 1. Write down similarities and differences that you note in each, then answer the following questions...

1. Which vehicle do you think might win a race? Why?
2. Which vehicle do you think might lose a race? Why?
3. Which vehicles do you think will come in closest? (a tie) Why?

Let's Race!! Gentlemen start your engines!! (Answer the rest after the race)

4. How do your predictions about the race compare to what happened?
5. What factors might have influenced the outcome?