Building a Connection between Rate of Change and Straight Lines

- A sports car leaves High Point and heads south for Cape May.
- At the same time an overloaded van leaves Atlantic City and a pickup truck leaves Cape May and head north toward High Point.
- The sports car is traveling at 72 mph, the pickup truck is traveling 66 mph, and the overloaded van is traveling at 48 mph.

- When and where will they pass each other?

- Change the rates of change to miles per minute so we can study the problem in smaller increments.

- Make a table to record the distance from Cape May for each vehicle every minute.
- After completing the first couple of rows, change the intervals to 10 minute intervals until you have covered 4 hours.
- Write a recursive sequence would model each car's distance from Cape May?
- Define what x and y will represent.
- Make a paper graph for this traveling situation.
- What do you notice about the points that represent each vehicle?

- What is the starting position of each vehicle? Where is this on the table? Where is it on the graph?

- How does the vehicle's speed effect the graph?

- How can you tell which line represents the van?

- Where are the vehicles when the van meets the first vehicle heading north?

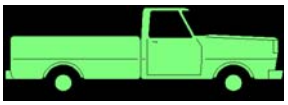
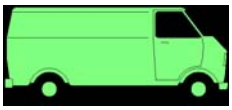
- How can you tell if the pickup truck or sports car is traveling faster from the graph?

- Which vehicle arrives at its destination first? How much later do the other vehicles reach their destination?

- Are you making any assumptions about each of the vehicles as you answer the questions?

- Write an equation that represents each vehicles distance from Cape May by referring to your recursive sequence.

- Enter these equations in your graphing calculator. How do these graphs compare to your paper graph?

Highway Distance from Cape May			
Time (Minutes)	 Sports Car	 Pickup Truck	 Overloaded Van

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