



Teacher Notes for Traffic

Compatibility: TI-83/83+/83+SE/84+/84+SE

Run The Program Called: **TRAFFIC**

► Summary

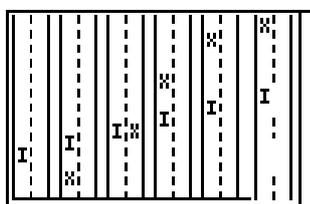
This program develops graph interpretation skills by using animated graphics with distance-time graphs. You can view traffic on a road from above in a variety of different formats, displayed in real time.

► Features

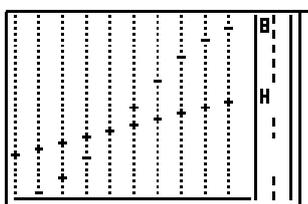
There are 20 example graphs built in to the program - 10 linear and 10 non-linear. These are included in these notes, along with a summary of views and buttons to press.

After selecting **Linear** or **Non-Linear** from the first menu, use the up and down arrow keys to select the number of the graph, or "Rand" that will randomly select one of the 10 graphs for you.

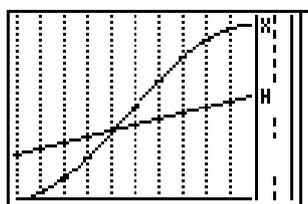
Thereafter you have the option of viewing **GRAPH ONLY**, **ROAD ONLY**, **SNAPSHOTS->GRAPH**, **MARKERS->GRAPH** or **BOTH ROAD + GRAPH**.



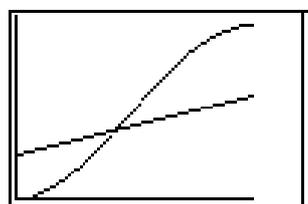
snapshot



markers....



... with graph on top



graph only

- Snapshots** Photographs of the road are taken at regular intervals and are lined up beside the animated display on the far right hand side. The graph is then superimposed on top of the roads.
- Markers** This gives a more refined view at more regular intervals and also superimposes a graph on top when finished.

► Suggestions

- ◆ Start off by showing **ROAD ONLY** for a linear graph of your choice, then progressing through **SNAPSHOTS->GRAPH** to **MARKERS->GRAPH** and finally to **BOTH ROAD + GRAPH**.
- ◆ Questions that can be asked of the class, or individuals:
 - Why do the lines slope at different angles?
 - What happens at the point where the lines cross?
 - Why do the lines slope in opposite directions in situation 8?
 - What does a horizontal line mean?
 - What happens when 3 lines meet?
- ◆ Encourage students to think of a short story which would explain the graph. In Linear Situation 3, this could be the driver stopping for a hitch-hiker, or recovering an object that had been dropped. Don't give these examples to the class - let them think of their own.
- ◆ With sufficient exposure to the various situations, it should be possible for the students to work without the program. They could write out a description of a traffic situation and sketch its accompanying graph. The description would then be passed to their neighbour who would produce a similar graph from this description alone. The two resulting graphs can be compared, discussed and corrected.

► **Technical Notes**

The program uses a LOT of memory (4·4K) in addition to its own size (3·2K) in order to generate the animations. Be aware of this when other programs are present in RAM memory, otherwise Memory Errors may occur.

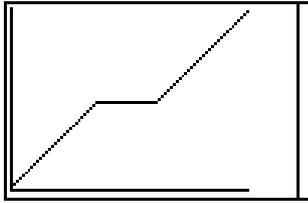
The program benefits from being run on a TI-83+SE/84+/84+SE due to the extra speed of processor with these calculator models.

► **Acknowledgements**

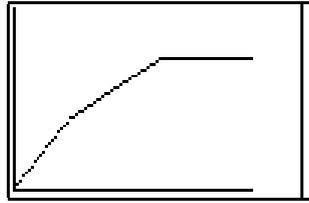
This program idea and design originated from “The Language of Functions and Graphs” pack, made by the Shell Centre for Mathematical Education.

TRAFFIC - Teacher's Sheet

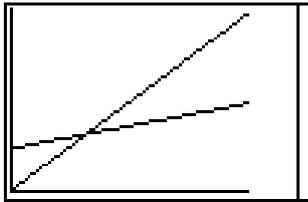
Linear Graphs



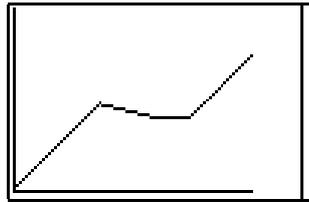
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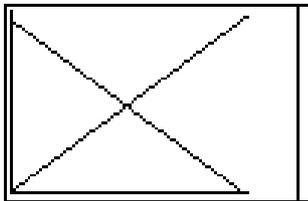
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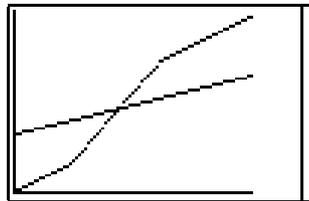
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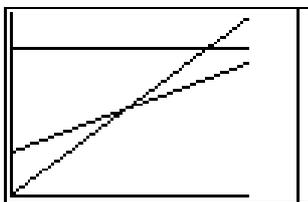
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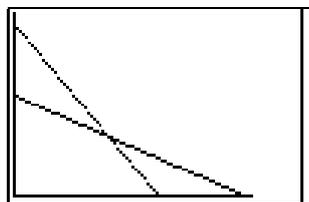
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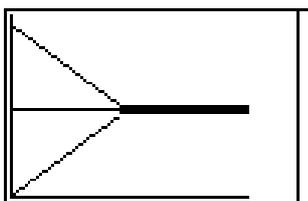
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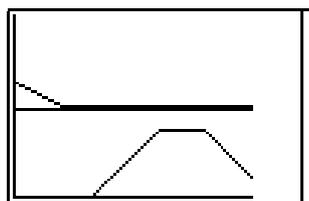
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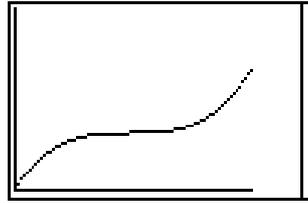


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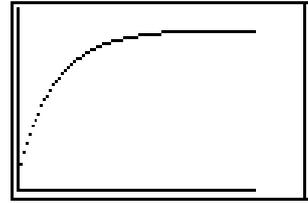


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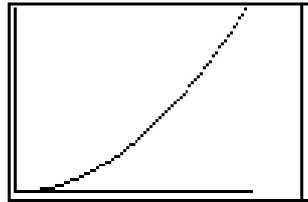
Non-Linear Graphs



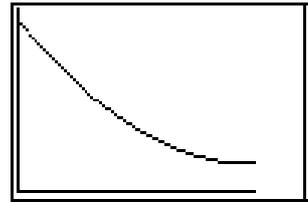
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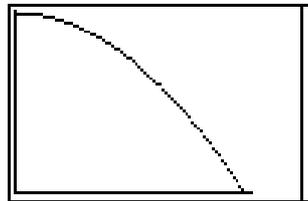
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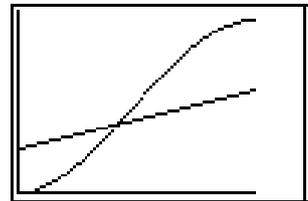
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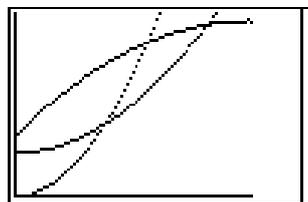
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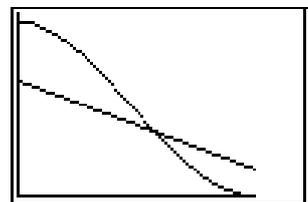
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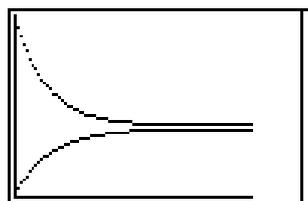
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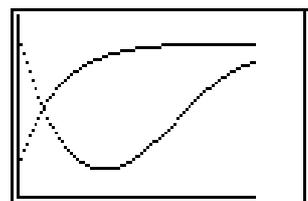
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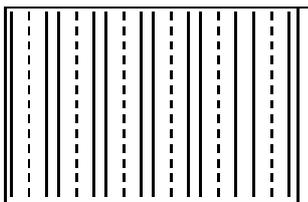
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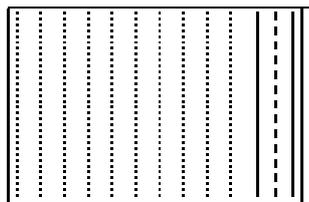
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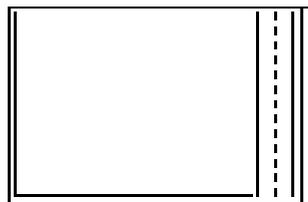
9



snapshot



markers



graph

ENTER to continue
2nd to run again

