

Unit 3 Part 1 - Relations

2.6 - Distance Time Graphs

Learning Goal:

You will interpret the motion of an object or person based on a distance-time graph



Distance-Time Graphs

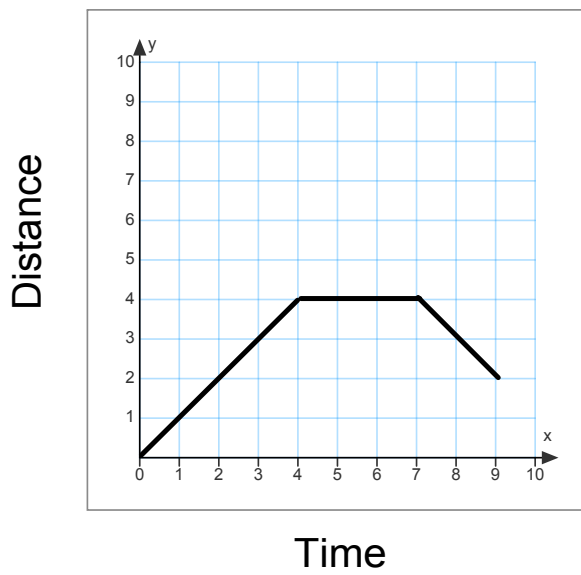
Distance-Time graphs are another example of graphs displaying data. A distance-time graph shows an objects **distance from a fixed point over time**.

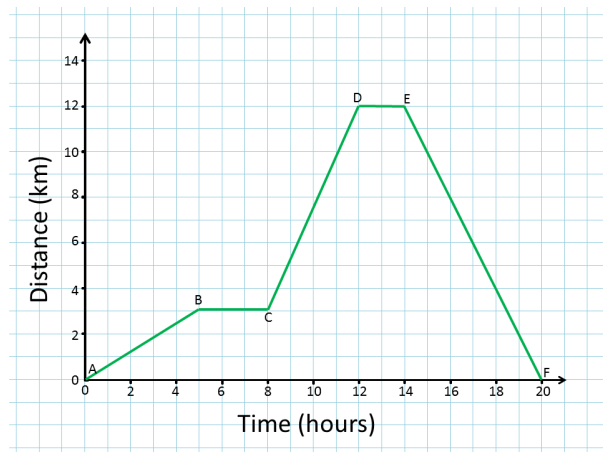
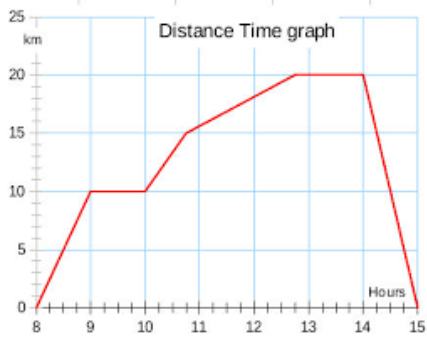
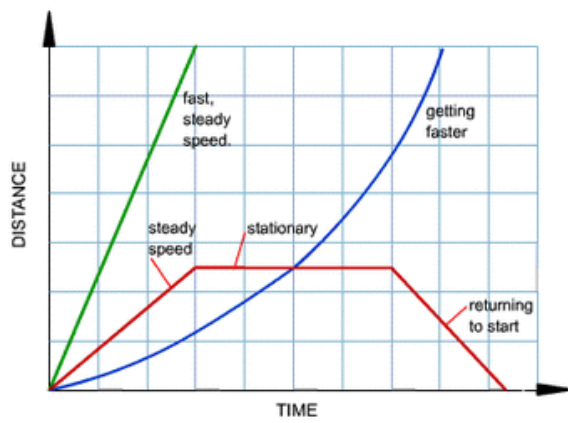
A rising line shows the object's distance increasing over time. A falling line shows the object's distance decreasing over time. A horizontal line shows that the distance remains constant.

The steeper the line, the faster the movement!

Time is the independent variable and distance is the dependent variable.

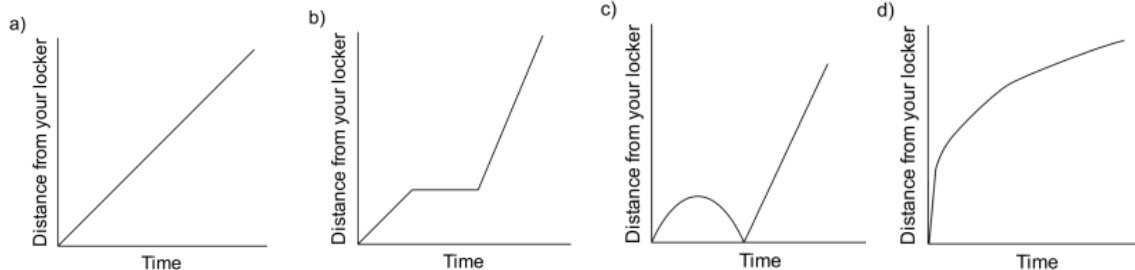
Ex.





Graphical Stories

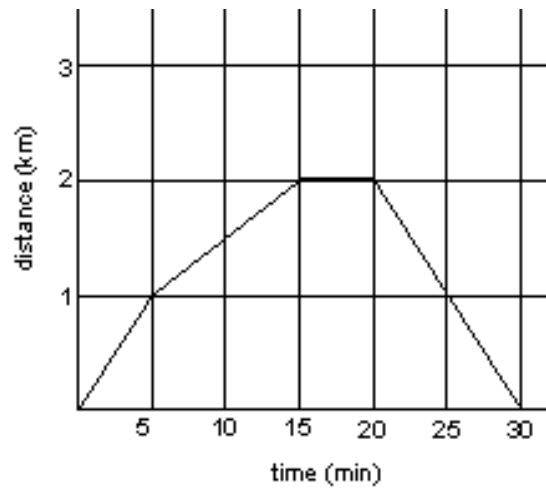
Below the following Distance-Time graphs are stories about walking from your locker to your class. Match each story to the appropriate graph:



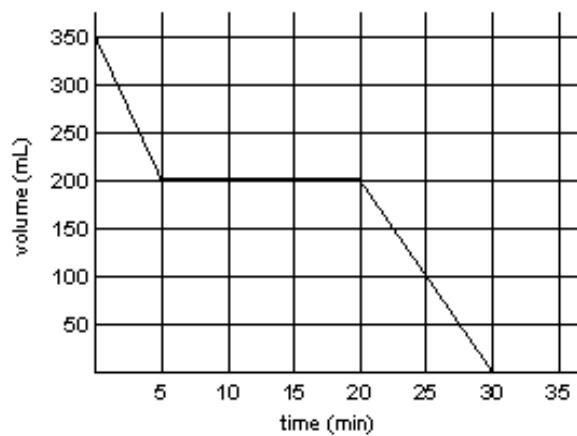
1. I started to walk to class, but I realized I had forgotten my notebook, so I went back to my locker and then I went quickly at a constant rate to class.
2. I was rushing to get to class when I realized I wasn't really late, so I slowed down a bit.
3. I started walking at a steady, slow, constant rate to my class.
4. I walked to my friend's locker, and stopped to talk to her for a few minutes. After she had collected all of her books, we walked (a little faster this time) to class together.

Graphical Stories (continued)

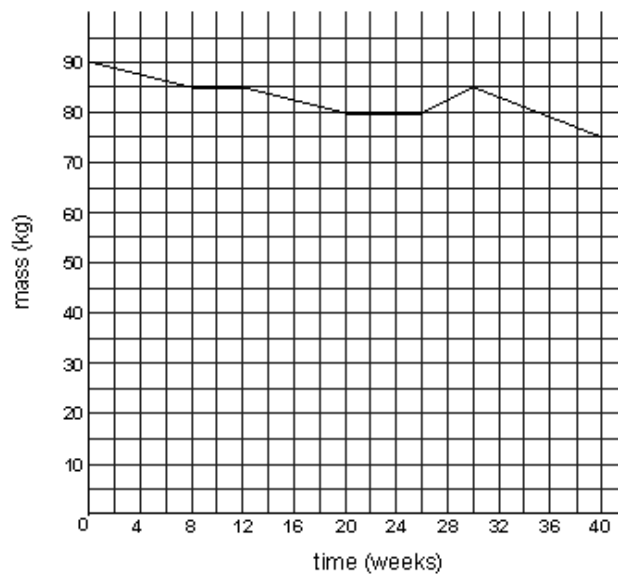
One sunny June morning, Leslie decided to go for a jog. Use the graph below to write a creative story about the events that occurred during her jog. Include as much mathematical terminology as possible.



When Leslie returned from her jog at noon, she went to the fridge and took out a bottle of water. The graph to the right represents the volume of water in the bottle over time. Write a story about the volume in the bottle. Include as much mathematical terminology as possible



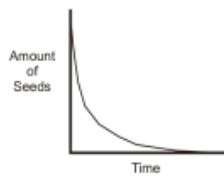
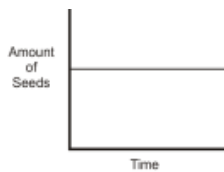
At the beginning of September, Rick weighed 90 kilograms. He decided to start an exercise plan and lose some weight. The graph below represents Rick's weight over the next 40 weeks. Use the graph to write a story about Rick's weight loss. Include as much mathematical terminology as possible.

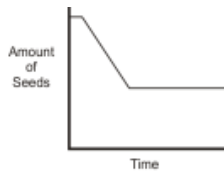


Sunflower Seed Graphs

Ian and his friends were sitting on a deck and eating sunflower seeds. Each person had a bowl with the same amount of seeds. The graphs below all show the amount of sunflower seeds remaining in the person's bowl over a period of time.

Write sentences that describe what may have happened for each person.





Writing Stories Related to a Graph

Use one of the graphs on the next page to create a story of your own. As you create your story there are a few things to remember:

- Focus on the rate of change of each section of the graph
- Determine whether the rate of change is constant, varying from fast to slower or slow to faster or zero.
- Scale your graph, and label each axes.

Criteria Does your story include:	Yes ✓
• the description of an action? (e.g., distance travelled by bicycle, change of height of water in a container, the change of height of a flag on a pole)	
• the starting position of the action?	
• the ending position of the action?	
• the total time taken for the action?	
• the direction or change for each section of the action?	
• the time(s) of any changes in direction or changes in the action?	
• the amount of change and time taken for each section of the action?	
• an interesting story that ties all sections of the graph together?	

Oral Presentation Story Graphs

