

Graphing a Story: Straight vs. Curved Case Overview

Background on the Classroom Lesson

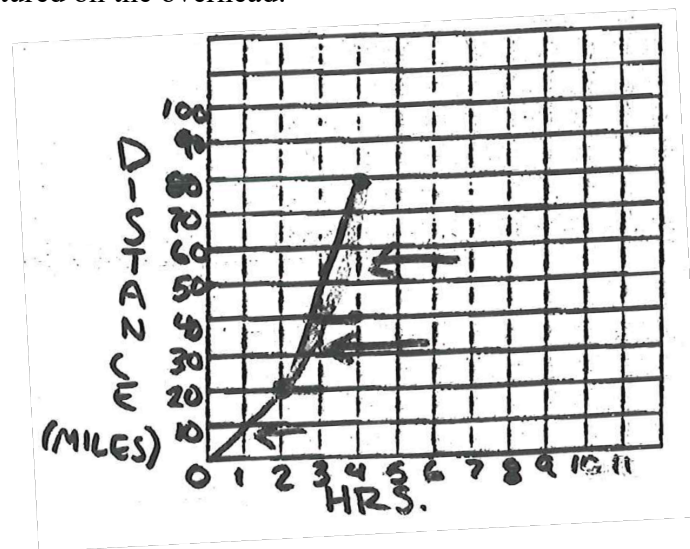
This video comes from an 8th-grade mathematics class during the first few lessons in a unit on graphing and functions.

Student Activity

Students are asked to graph the following story:

A cargo ship leaves shore traveling slowly at 10 mph for the first 2 hours. Then it keeps picking up speed, going faster and faster until 2 hours later, the ship is 80 miles from shore.

Here is what was pictured on the overhead:



Overview of the Video

In the video, students discuss the graphs students made for a story about a cargo ship traveling away from shore. The class first discusses Jennifer's graph of the story and then John's graph of the story. When watching (or re-watching), focus on the different ways that students talk about straight and curved lines. Consider the reasons students provide for representing the second part of the situation either in a straight or curved graph, and how the students are interpreting the physical situation.

Questions to Consider about Student Thinking

We think some of the richest student thinking in this video occurs around the graph as a straight line and the graph as a curved line. In what follows, we provide sets of questions about each graph to scaffold analysis of students' ideas.

1. Student Disagreement:
 - a. What is the central disagreement that students are having about the graph?

2. Thinking about the Straight Line:
 - a. What is Jennifer's idea about the second part of the graph?
 - b. How do the other students think about straight lines?

3. Thinking about the Curved Line:
 - a. What reasons do students give for claiming that the second part of the graph should be a curve?
 - b. Are Gary and John reasoning about the curve in the same way?
 - c. What is Jennifer's idea about the upward curve in the graph?