



Anna's Scooter

Anna wants a new electric scooter. She has seen a couple that she likes, and she takes her parents to see them.

- I. The Transporter has a maximum speed of 15 miles per hour ($\frac{\text{miles}}{\text{hour}}$). The unusual feature of this scooter is that almost instantly goes from being at rest to its maximum speed of 15 miles per hour ($\frac{\text{miles}}{\text{hour}}$) and remains at this speed until it stops; she cannot slow down or speed up during the trip.
 - a. How far will the Transporter go in one minute?
 - b. How long will Anna's one-mile trip to school take?
 - c. Graph the following pairs of variables for the Transporter:
 - Acceleration vs. time
 - Velocity vs. time
 - Distance vs. time

- II. Anna's parents are not comfortable with the way the Transporter jumps to its maximum speed and can't slow down. They want her to look at the Tank. This scooter starts out very slowly and accelerates constantly at $\frac{1}{16}$ mile per minute each minute ($\frac{\text{mile}}{\text{min}^2}$) to its maximum speed of 37.5 miles per hour ($\frac{\text{miles}}{\text{hour}}$).
 - a. Make a table to show the time on Anna's trip to school, the velocity at each time, and the distance traveled so far. Remember that this scooter's maximum speed is 34.5 miles per hour. Hint: it seems to work best to work with the fractions rather than changing to decimals and to go in 1-minute steps.
 - b. Graph the following pairs of variables for the Transporter:
 - Acceleration vs. time
 - Velocity vs. time
 - Distance vs. time

- III. Describe the differences between Anna's trips to school on the two scooters. How did your solution for Transporter scooter inform your analysis of the Tank scooter? If you were to re-do your solution to the Transporter scooter, what other strategies might you use?