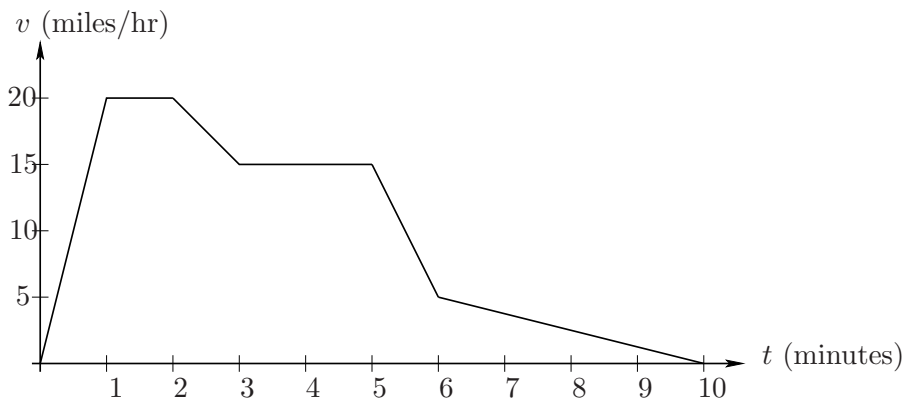


9. (5+2+2+3 points) The three happy wizards leave the fair and go home to watch the Simpsons. In this episode, Homer needs to deliver Lisa's homework to her at school, and he must do so before Principal Skinner arrives. Suppose Homer starts from the Simpson home in his car and travels with velocity given by the figure below. Suppose that Principal Skinner passes the Simpson home on his bicycle 2 minutes after Homer has left, following him to the school. Principal Skinner is able to sail through all the traffic and travels with constant velocity 10 miles per hour.



- (a) How far does Homer travel during the 10 minutes shown in the graph?
- (b) What is the average of Homer's velocity during the 10 minute drive?
- (c) At what time, $t > 0$, is Homer the greatest distance ahead of Principal Skinner?
- (d) Does Principal Skinner overtake Homer, and if so, when? Explain.