8. (2+10 points) Over the summer you are hired by a trucking company to help them improve operations. A truck driver is paid $12 per hour for driving a truck over a 200 mile stretch of highway. The cost of driving the truck at an average velocity of v miles per hour is $(5 + .568v)$ dollars. The truck driver must drive between 40 mph and 70 mph.

(a) If the truck driver drives an average of v miles per hour for 200 miles, how long does he drive?

(b) At what average speed should the truck driver be told to drive in order to minimize the company's cost for the 200-mile trip? Note that the company's cost is the cost of paying the driver plus the cost of driving the truck.