10. (15 points) The graphs shown represent the flow of traffic (in number of motor vehicles per minute) in and out of Ann Arbor on a typical weekday.

\[ \text{Outflow} = f(t) \]
\[ \text{Inflow} = g(t) \]

(a) During the course of the day, at what time is the largest number of cars in Ann Arbor? Give an explanation of how you arrived at this answer.

(b) At what time is the number of cars in Ann Arbor increasing the most rapidly? Decreasing the most rapidly? Again, please give an explanation of how you arrived at this answer.

Problem continued on next page.
Continuation of problem from the previous page.

(c) Sketch possible graphs of the inflow of traffic and the outflow of traffic in for Ann Arbor on a football Saturday if we assume kickoff is at 3pm. Explain how you arrived at the graph drawn.

rate of flow

Midnight 4am 8am Noon 4pm 8pm Midnight
(next day)