

2. [12 points] The Facebook Data team has decided to track the University of Michigan network status updates that mention football in order to see which days to show ads for tailgating supplies. Starting at 1pm Saturday, they measure an aggregate Football Status Factor by calculating the percentage of status updates which mention any of a number of designated football terms every hour. They notice very quickly that the data is sinusoidal with period 168 hours (the number of hours in a week). Suppose $F(t)$ is this percentage, t hours after 1pm Saturday.
- a. [2 points] If the maximum percentage is 96% at 1pm Saturday, and the minimum is 28% attained 84 hours later, compute the following quantities:
1. Midline
 2. Amplitude
- b. [6 points] Using the values computed above, find a formula for $F(t)$.
- c. [4 points] Suppose advertisers want to advertise when the rate at which people are talking about football is increasing the fastest. What time range would you recommend to them and why? Use a graph of $F(t)$ to justify your answer.

