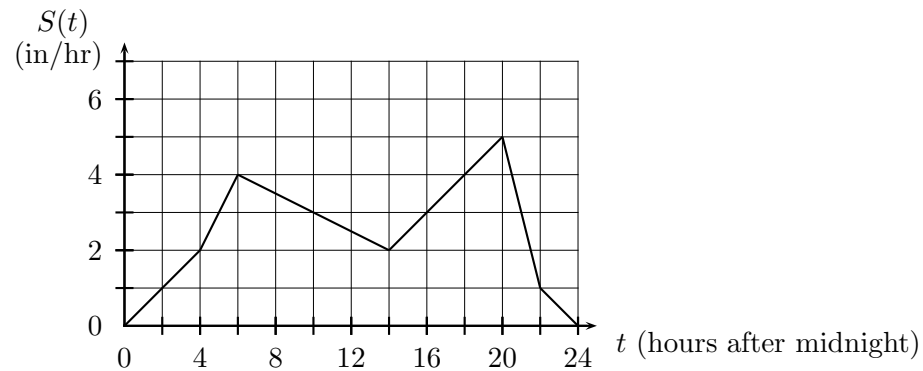**8.** [12 points]
The graph below gives the rate $S(t)$, in inches per hour, of snow fall t hours after midnight along a major thoroughfare in Ann Arbor. Beginning at 8:00 a.m., the city truck began removing snow at the rate of 2 in/hr. [Salting had been halted, as a consequence of economic conditions in Michigan.] Assume that there was no snow on the road prior to midnight.

a. [2 points] How deep was the snow at 2:00 p.m.?

b. [2 points] At what time was the snow falling the fastest?

c. [2 points] At what time was the snow deepest?

d. [2 points] At what time was the depth of the snow on the ground increasing fastest?

e. [2 points] What is the average rate at which snow fell between 4 am and 2 pm?

f. [2 points] Write an expression for the average depth of the snow on the ground between 5 am and 8 am.