

Problem 8

Snow began to fall during the morning of February 2 and continued steadily into the afternoon. At noon a snowplow began removing snow from a road at a constant rate. The plow traveled 6 km from noon to 1 PM but only 3 km from 1 PM to 2 PM. When did the snow begin to fall? [Hints: To get started, let t be the time measured in hours after noon; let $x(t)$ be the distance traveled by the plow at time t ; then the speed of the plow is dx/dt . Let b be the number of hours before noon that it began to snow. Find an expression for the height of the snow at time t . Then use the given information that the rate of removal R (in m^3/h) is constant.]