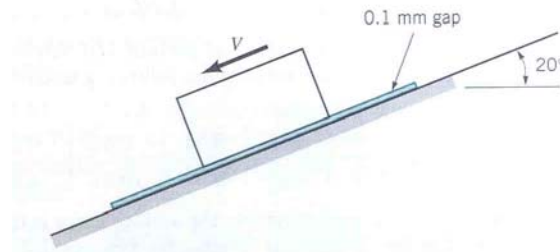
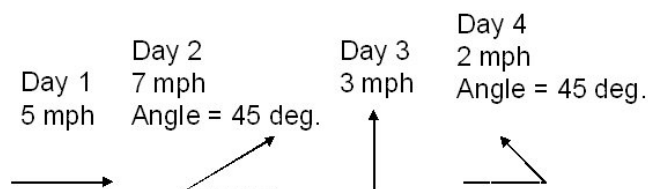




1. A 10 kg block slides down a smooth inclined surface as shown. Determine the terminal velocity for the block if the 0.1 mm gap between the block and the surface contains SAE 30 oil. Assume the velocity distribution in the gap is linear and the area of the block in contact with the oil is 0.2 m^2 .



2. P1.47 White (same in both editions)
3. P1.69 White (same in both editions)
4. P 1.70 White (same in both editions)
5. P 1.73 White (same in both editions)
6. An explosion occurs at a nuclear power plant and radioactive steam is escaping from a broken pipe at time $t=0$. The wind field is modeled to be the following for the next 4 days and the steam is assumed to advect with the wind field.



Assuming the plant is located at $(x,y)=(0,0)$, plot to scale: a) the streaklines at the end of each day. b) The pathline at the end of the 4th day of the particle that left the broken pipe at time $t=0$. c) The pathline at the end of the 4th day of the particle that left the broken pipe at the end of day 2. If a Geiger counter (measures radioactivity) is located at (100 miles,140 miles) does it register any signal due to the radioactive steam?

EXTRA CREDIT: P1.71 White (same in both editions)