Math 2167: Homework 7
Due: Friday, October 25th

1) Sand is falling into a conical pile at the rate of 10 cubic feet per minute. The diameter of the base of the cone is twice the height. At what rate is the height of the pile changing when it is 7 feet high? Explain your reasoning.

2) A metal chain is tied around the equator of the Earth, which for our purposes has a circumference of 40000 km. As the Earth spins, the metal chain forms a perfect circle. A certain person is adding in links to the metal chain, so that the metal chain is increasing in length at a rate of π m/hour. How quickly is the radius of the circle formed by the metal chain changing? Explain your reasoning.