



4. Water is being collected from a block of ice with a square base. The water is produced as the ice melts in such a way that each edge of the base of the block is decreasing in length at two inches per hour, while the height of the block is decreasing at three inches per hour. What is the rate of the flow of water into the collecting basin when the base has an edge length of three feet, and the block is three feet tall?  
(You may assume that water and ice have the same density.)
5. Suppose the observed top of a triangular object is changing. At a certain point in time, one side is ten feet long and increasing at three feet per second, a second side is fifteen feet long and decreasing at a rate of two feet per second, and the angle between these two sides is  $\pi/3$  radians and decreasing at a rate of  $2/25$  radians per second. What is the rate of change of the area of the triangular region at this moment?
6. Suppose one day – even though you have a great mathematics instructor – you are so bored in calculus class that you start to watch the time pass on the clock. You begin to wonder how fast the distance between the tips of the clock hands is changing. You assume the hour hand is five inches long and the minute hand is seven inches long. How fast is the distance changing between the tips of the hands at 9:00 a.m.? **Extra Credit.** How fast is the distance changing between the tips of the hands at 10:10 a.m.?