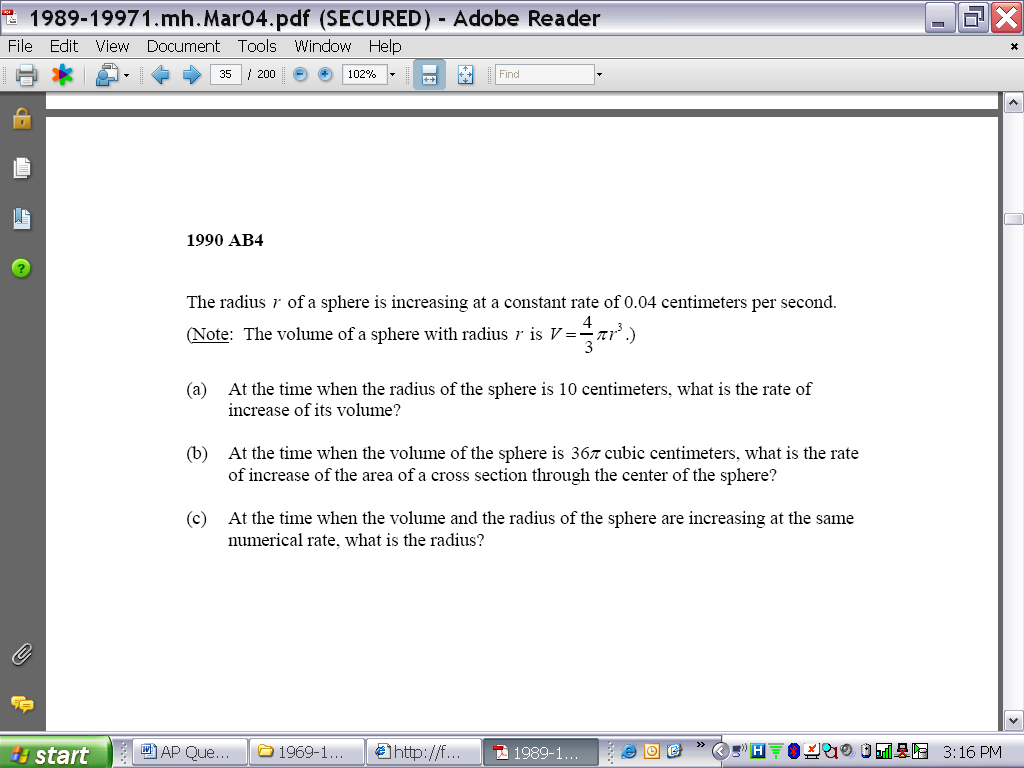
**A.P. Calculus 1 – Review**

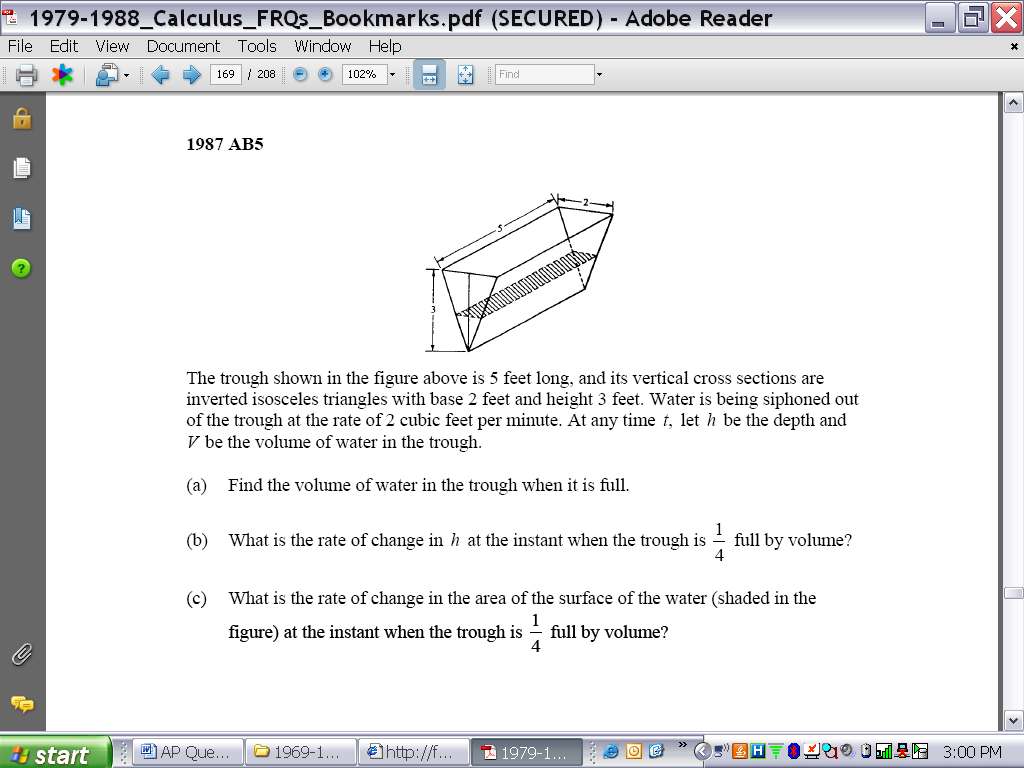
**Related Rate Practice**

1. An 8 foot long ladder is leaning against a wall.  The top of the ladder is sliding down the wall at the rate of 2 feet per second.  How fast is the bottom of the ladder moving along the ground at the point in time when the bottom of the ladder is 4 feet from the wall?
2. A boat is being pulled toward a dock by means of a rope attached to the front tip of the bow.  Initially there are 30 feet of rope out and the rope is taught and being reeled in by a circular device the top of which is 10 feet higher than the point where the rope is attached to the boat.  This circular device has a radius of 1 foot and turns at the rate of one revolution every pi seconds.  How fast is the boat moving along the water when there are 15 feet of rope out?
3. Water is being poured into a conical reservoir at the rate of pi cubic feet per second.  The reservoir has a radius of 6 feet across the top and a height of 12 feet.  At what rate is the depth of the water increasing when the depth is 6 feet?

1. A man 6 feet tall is walking toward a lamppost 20 feet high at a rate of 5 feet per second.  The light at the top of the lamppost (20 feet above the ground) is casting a shadow of the man.  At what rate is the tip of his shadow moving and at what rate is the length of his shadow changing when he is 10 feet from the base of the lamppost?



5.

6.