**12K Differentiation in Context**

1. Given that the volume, , of an expanding sphere is related to its radius, , by the formula , find the rate of change of volume with respect to radius at the instant when the radius is 5cm.
2. A large tank (shown) is to be made from 54m2 of sheet metal. It has no top.

a) Show that the Volume of the tank will be given by:

b) Find the Maximum volume of the tank