1. Consider a sphere of r=3, centered at the origin. The top of the sphere is cut off at height of y=2 and than a cylindrical hole with radius of 1, centered on the y axis is drilled from flatten top of the sphere to a depth of 1.
   1. Calculate the area of a slice of the sphere at height y. Use formula for area of the slice to calculate the volume of the remaining part of the sphere with the hole in it.
2. For any n white the anti derivative of in terms of an integral involving . Find a reduction formula for this integral.