

1. A right circular cone has circular base of radius  $R$  and height  $H$ , both measured in feet.
  - a) What is the volume of the cone?
  - b) Write down as many different integrals as you can for computing this volume.
  - c) Do at least two of these integrals.

*For some integrals, you may wish to use the fact that*

$$\cos(2\alpha) = 2 \cos^2\alpha - 1 = 1 - 2 \sin^2\alpha$$