

Calculus III - Quiz 6 - Spring 2015

March 24, 2015

Name: _____

Due on Thursday May 26th at the beginning of class.

1. (10 points) Use spherical coordinates to compute the volume of the solid bounded by

$$(x^2 + y^2 + z^2)^3 \leq z^4$$

and lies above the xy -plane (so $z \geq 0$).

Recall that, in spherical coordinates

$$x = \rho \sin \phi \cos \theta$$

$$y = \rho \sin \phi \sin \theta$$

$$z = \rho \cos \phi$$

and $dV = \rho^2 \sin \phi d\rho d\theta d\phi$.