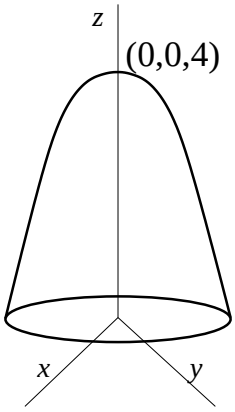
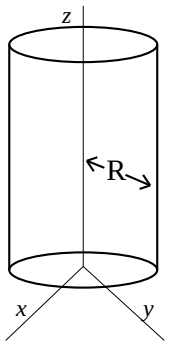
640:291:01 **(not such a) SURPRISE QUIZ!!!** **10/30/2002**

NAME _____

Please try the question yourself. You may look at your notes or the textbook. Then ask me or others if you need help.



On Monday we saw that the volume of the region in $\mathbb{R}^3$ below $z = 4 - (x^2 + y^2)$ and above the $xy-$plane (shown to the left) is 8π. Half of that volume is 4π. A right circular cylinder whose axis of symmetry is the $z-$axis is shown on the right. This cylinder is the collection of points which satisfy $x^2 + y^2 = R^2$.



Problem Find R so that the cylinder divides the volume we computed into two equal pieces.