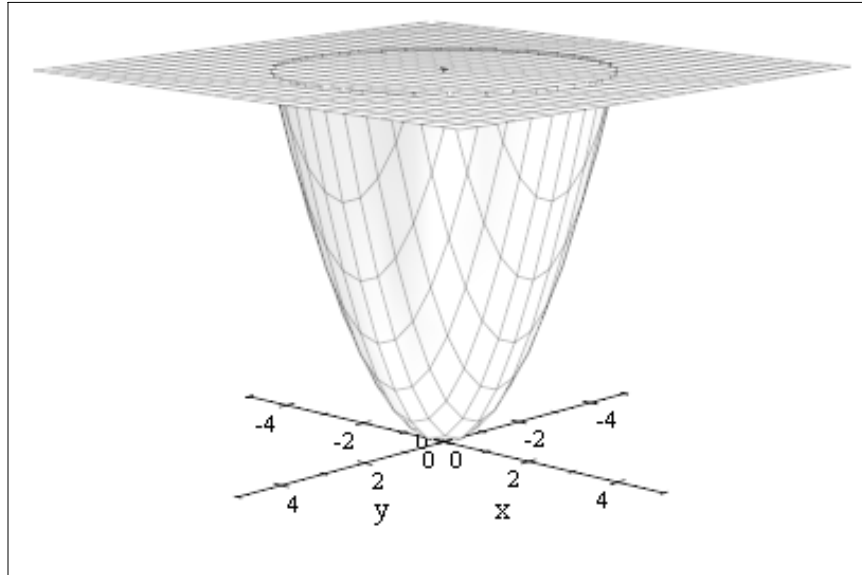
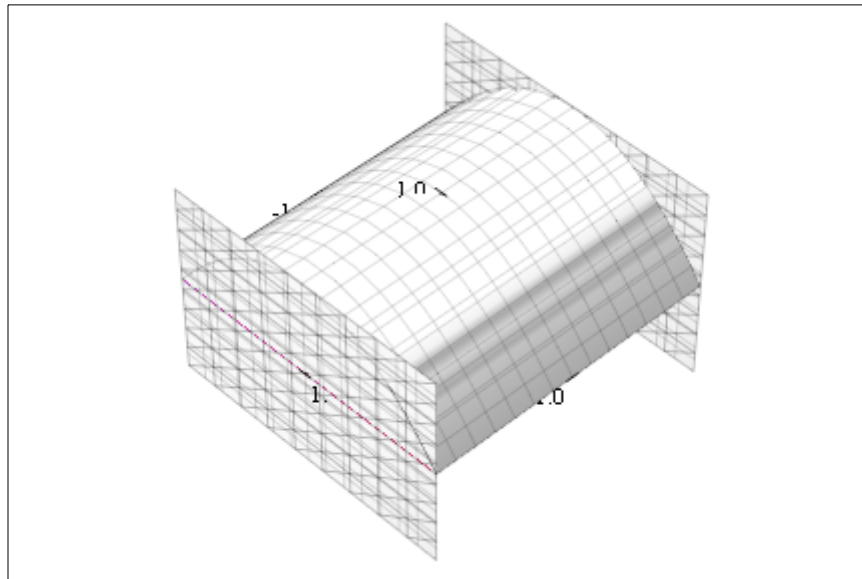


Assignment 6

1. Find the area of the surface $z = x^2 + y^2$ that lies below the plane $z = 9$
(Hint: transformation to plolars will make the computation easiar)

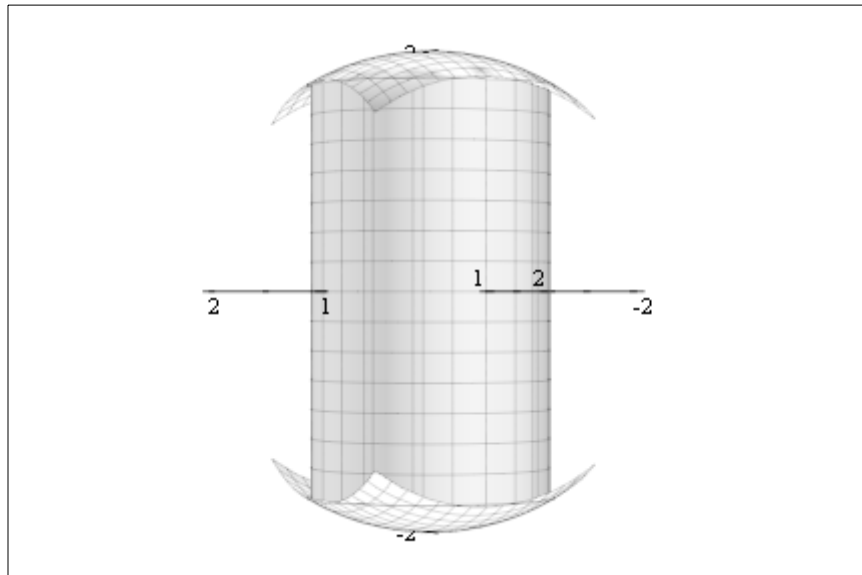
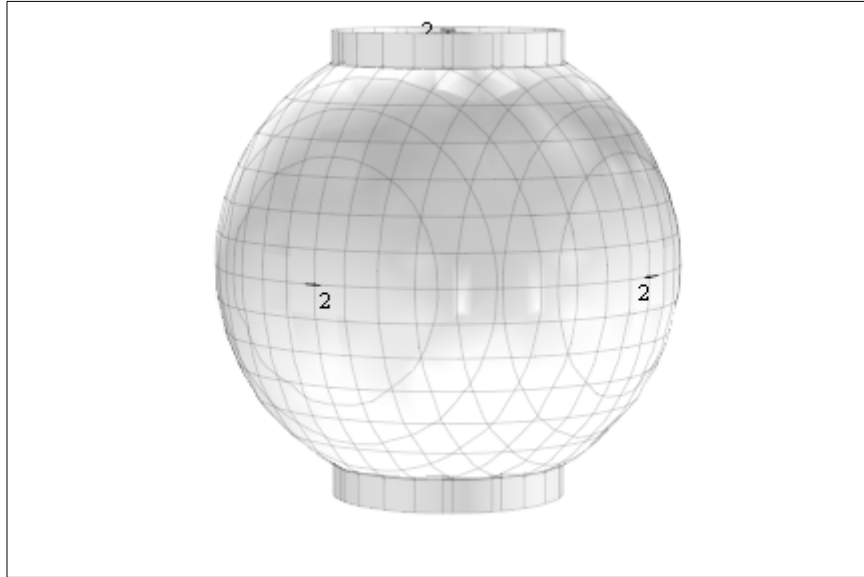


2. Find $\iiint_S x^2 e^y dV$, where S is bounded by $z = 1 - y^2$, and the planes $z = 0, x = 1$,
and $x = -1$
The region S is



3. Use the cylindrical coordinates to find the volume of the region that lies inside both of the sphere

$$x^2 + y^2 + z^2 = 4 \text{ and the cylinder } x^2 + y^2 = 1$$



4. Use the spherical coordinates to evaluate $\iiint_S (x^2 + y^2 + z^2) dV$

where S is the region inside the unit ball $x^2 + y^2 + z^2 \leq 1$

5. Use the change of variables $x = \frac{1}{2}(u + v)$ and $y = -\frac{1}{2}(u - v)$

To evaluate

$$\iint_R 60xy dA$$

where R is the region shown below

