### 6.2 Volumes Using Cylindrical Shells

In-class work:

1. (Exercises \#2, \#3 / 6.2) Use the shell method to find the volumes of the solids generated by revolving the shaded regions about the indicated axis.
(A: $6 \pi ; 2 \pi$ )
2. 


3.

2. (Exercise \#24 c / 6.2) Use the shell method to find the volume of the solid generated by revolving the region bounded by $y=x^{3}, y=8, x=0$ about $x=-2$.
(A: $\frac{336 \pi}{5}$ )
3. (Exercise \#30 / 6.2) Compute the volume of the solid generated by revolving the triangular region bounded by the lines $2 y=x+4, y=x, x=0$ about:
c) the line $x=4$ using the shell method.
d) the line $y=8$ using the washer method.
(A: $\frac{64 \pi}{3} ; 48 \pi$ )
4. (Exercise \#41 / 6.2 ) A bead is formed from a sphere of radius 5 by drilling through a diameter of the sphere with a drill bi $t$ of radius 3 .
a) Find the volume of the bead.
b) Find the volume of the removed portion of the sphere.
(A: $\frac{256 \pi}{3} ; \frac{244 \pi}{3}$ )
5. (Exercise \#39 / 6.2) The region shown here is to be revolved about the $x$-axis to generate a solid. Which of the methods ( disk, washer, shell) could you use to find the volume of the solid? How many integrals would be required in each case?


