For each three dimensional object described below,

a. Sketch the solid described
b. Set up an integral that gives the volume of the object
c. Evaluate the integral

1. The region bounded by $y = 4 - 2x$ in the first quadrant is rotated about the x-axis
2. The region bounded by $y = \dfrac{1}{\sqrt{1+x^2}}$, the x-axis, $x = -1$ and $x = \dfrac{1}{\sqrt{3}}$ is rotated about the x-axis
3. The region from #1 is rotated about the line $y = -3$

Find the volume of each three dimensional object described below.

4. The solid formed when the region bounded by $y = x^2 + 1$ and $y = x + 3$ is rotated about the x-axis

5. The volume when the region from #1 is rotated about the line $y = 12$

6. The region bounded by $y = \frac{1}{x}$, $x = 1$, and the x-axis is rotated about the x-axis. Notice this region is unbounded on the right