For each three dimensional object described below,

a. Sketch the solid described

b. Use an integral to find the volume of the object

1. The region bounded by $y = 4 - 2x$ in the first quadrant is rotated about the x-axis

2. The region from #1 is rotated about the y-axis

3. 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

4. The region bounded by $y = \sqrt{x}$, $y = 2$, and $x = 0$ is rotated about the y-axis

5. The region from #1 is rotated about the line $y = -3$

6. The region from #4 is rotated about the line $x = 4$