

**Take-home Quiz 2****Calc 2****Due 2/17/23**

Each question is worth 5 points. Show good justification for full credit. Open book, open notes, feel free to collaborate with anyone, but try to make sure you understand what you turn in well.

1. Use an integral to find the volume of a cap with height  $h$  of a sphere with radius  $r$ , as pictured in §7.2 #33.
2. Use an integral to find the volume of the napkin ring from §7.3 #42.
3. Consider the region below  $y = \frac{1}{x}$ , above the  $x$ -axis, and to the right of  $x = 1$ . Use an integral to find the volume of the solid obtained by rotating this region around the  $x$ -axis.
4. Find the surface area of the solid from #3.