End-of-Unit 8 Review – Applications of Integration
## Lessons 8.7 through 8.12

Reviews do NOT cover all material from the lessons but will hopefully remind you of key points. To be prepared, you must study all packets from Unit 8.

Calculator active. Let R be the shaded region bounded by the graphs of $y = \sqrt{x}$ and $y = e^{-2x}$ and the vertical line $x = 4$ as shown in the figure above.

1. Find the area of R

2. Find the volume of the solid generated when R is revolved about the horizontal line $y = 2$.

3. The region R is the base of a solid. For this solid, each cross section perpendicular to the x-axis is a rectangle whose height is 4 times the length of its base in region R. Find the volume of this solid.

Calculator active. Let T be the region enclosed by the graph of $y = -\sqrt{x+3}$, the vertical line $x = 6$, and the x-axis.
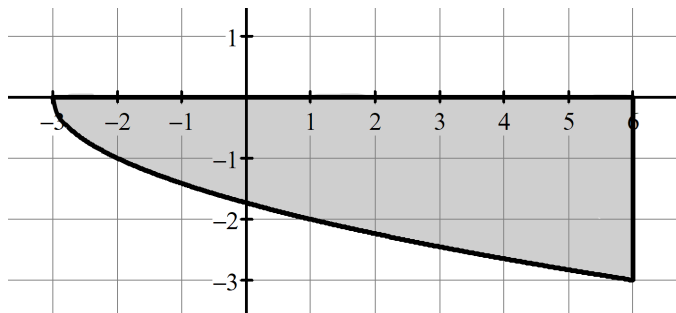
4. Find the area of T.

5. The region T is the base of a solid. For this solid, each cross section perpendicular to the y-axis is a semicircle. Find the volume of this solid.

6. Find the volume of the solid generated when T is revolved about the horizontal line $y = -3$.

7. Find the volume of the solid generated when T is revolved about the vertical line $x = 6$.