

Name \_\_\_\_\_

Date \_\_\_\_\_

### Cavalieri's Principle - Guided Lesson

Complete the following problems:

1) Calculate the volume of the "hemisphere" with circular cross-sectional area equal to  $\pi\sqrt[8]{x^5}$  above  $x$  in the interval  $[0, 1]$ .



2) Let  $A(x) = \sqrt[9]{x^2}$  describes the area of a cross-section of a solid at  $x$  (perpendicular to the  $x$ -axis). Find the volume of solid from  $x=0$  to  $x=1$ .

3) Calculate the volume of the "cup" with circular cross-sectional area equal to  $\pi\sqrt[11]{x^4}$  above  $x$  in the interval  $[0, 1]$ .

