Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Volume Using Cross Sections

Sketch the base and cross section, then find the exact volume.

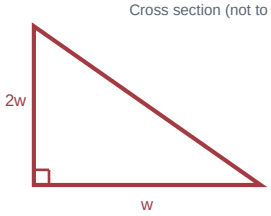
1. The base is the full noncircular ellipse inside the measured boundary

$$\frac{(x+3)^2}{25} + \frac{y^2}{16} = 1$$

Cross sections perpendicular to the x-axis are right triangles with perpendicular legs w and 2w.

Sketch the base and a sample slice.

Cross section (not to scale)



Work:

V = cubic units

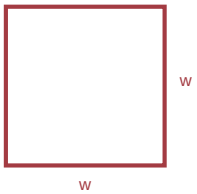
2. The base is the upper half of a noncircular ellipse inside the measured boundary

$$\frac{\left(x+\frac{3}{2}\right)^2}{9} + \frac{(y+3)^2}{36} = 1$$

Restrict to y >= -3. Cross sections perpendicular to the x-axis are squares with side w.

Sketch the base and a sample slice.

Cross section (not to scale)



Work:

V = cubic units

Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Volume Using Cross Sections

Sketch the base and cross section, then find the exact volume.

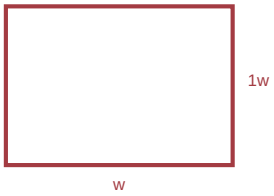
3. The base is the upper half-disk inside the measured boundary

$$\frac{(x+1)^2}{36} + \frac{\left(y - \frac{5}{2}\right)^2}{36} = 1$$

Restrict to y >= 5/2. Cross sections perpendicular to the x-axis are rectangles with base w and height 1w.

Sketch the base and a sample slice.

Cross section (not to scale)



Work:

V = cubic units

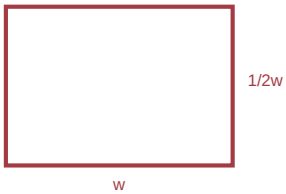
4. The base is the upper half of a noncircular ellipse inside the measured boundary

$$\frac{\left(x + \frac{1}{2}\right)^2}{36} + \frac{\left(y + \frac{1}{2}\right)^2}{9} = 1$$

Restrict to y >= -1/2. Cross sections perpendicular to the x-axis are rectangles with base w and height 1/2w.

Sketch the base and a sample slice.

Cross section (not to scale)



Work:

V = cubic units