Volumes of Solids with Known Cross Sections CW/HW

1. A solid **S** is built in such a way that its base is bounded by a circle of radius 3 meters and center at the origin. If each plane section perpendicular to a given diameter of the base is a square, find the volume of solid **S**.

2. Find the volume of a solid **S** if its base is bounded by the ellipse $x^2 + 4y^2 = 4$ and the cross sections perpendicular to the x- axis are squares.

3. Find the volume of a solid **S** if its base is bounded by the circle $x^2 + y^2 = 1$ and the cross sections perpendicular to the x- axis are equilateral triangles.

4. Find the volume of a solid **S** if its base is bounded by the circle $x^2 + y^2 = 4$ and the cross sections perpendicular to the x- axis are semicircles.

5. Find the volume of a solid **S** if its base is bounded by the circle $x^2 + y^2 = 16$ and the cross sections perpendicular to the x- axis are isosceles right triangles having the hypotenuse in the plane of the base.

6. Find the volume of a solid **S** if its base is bounded by the curve $y = 2x^3$, the lines $x = 2$ and $y = 0$, and the cross sections perpendicular to the line $x = 0$ are equilateral triangles.

1.	144	2.	32/3	3.	$(4\sqrt{3})/3$	4.	$16\pi/3$
5.	256/3	6.	$(8\sqrt{3})/5$				