8.9 Disc Method: Revolve Around x or y Axis

CA #1

Calculus Name: _____

For each problem, sketch the area bounded by the equations and revolve it around the x-axis. Find the volume of the solid formed by this revolution. Leave your answers in terms of π.

1. $y = -x + 4,\ x = 1,\ y = 0$

2. $y = -\sqrt{x},\ x = 2,\ x = 3$

Same instructions as above but use a calculator and round to three decimals.

3. $y = 2 - x^2,\ x = 0$

4. $y = \sqrt{16 - x^2},\ x = -1,\ y = 0$

Same instructions as above but revolve around the y-axis now. Leave your answers in terms of π.

5. $y = \sqrt{16 - x^2},\ x \geq 0,\ y = 0$

6. $y = x^3,\ x = 0,\ y = 8$

Answers to 8.9 CA #1

1. $\pi \int_1^4 (-x+4)^2\, dx = 9\pi$	2. $\pi \int_2^3 x\, dx = \frac{5}{2}\pi$	3. $\pi \int_0^{\sqrt{2}} (2 - x^2)^2\, dx = 9.478$
4. $\pi \int_{-1}^4 (16 - x^2)\, dx = 183.2596$	5. $\pi \int_0^4 (16 - y^2)\, dy = \frac{128}{3}\pi$	6. $\pi \int_0^8 (\sqrt[3]{y})^2\, dy = \frac{96}{5}\pi$