

MAC 2312 Calculus II, Worksheet #3 (Sec 6.2)

Date: _____

Name: _____

For the following problems, Find the volume of the Solids by

- A) Sketching the Region
- B) Finding the limits, if need be
- C) Setting up the Integral for the Circular Disk
- D) Setting up the Integral for the volume of the solid
- E) Solving the Integral

Q1) $y = \sqrt{25 - x^2}$ between $x = 2$ to $x = 4$ rotated about the $x - axis$. Answer: $\frac{94}{3}\pi$.

Q2) $y = x^2$, $x = y^2$ about $y = 1$. Answer: $\frac{11}{30}\pi$.

Q3) $y = \frac{1}{4}x^2$, $y = 5 - x^2$ about $x - axis$. Answer: $\frac{176}{3}\pi$.

Q4) $y = e^{-x}$, $y = 1$, $x = 2$; about $y = 2$. Answer: $\left(\frac{5}{2} + 4e^{-2} - \frac{1}{2}e^{-4}\right)\pi$.

Q5) $y = \sin x$, $y = \cos x$, $0 \leq x \leq \frac{\pi}{4}$; about $y = -1$. Answer: $\pi(2\sqrt{2} - \frac{3}{2})$.

Q6) $x = 2\sqrt{y}$, $x = 0$, $y = 9$; about $y - axis$. Answer: 162π

Q7) $y = \frac{1}{4}x^2$, $x = 2$, $y = 0$ about $y - axis$. Answer: 2π .

Q8) $y = x^3$, $y = 0$, $x = 1$; about $x = 2$. Answer: $\frac{3}{5}\pi$
