

DATE: \_\_\_\_\_

Let R be the region enclosed by the graphs of  $y = 2 \ln x$ ,  $y = \frac{x}{2}$  and the lines  $x = 2$  and  $x = 8$ .

1. Set-up, but do not integrate, an integral expression, in terms of a single variable, for the volume of the solid generated when R is revolved about the  $x$ -axis.

2. Set-up, but do not integrate, an integral expression, in terms of a single variable, for the volume of the solid generated when R is revolved about the line  $x = -1$ .

DATE: \_\_\_\_\_

**VOLUME (Disk & Washer) MULTIPLE-CHOICE**

1. Find the volume of the solid bounded by  $y = x^2$ ,  $x = 2$ , and  $y = 0$ , revolved about the  $x$ -axis.

- (A)  $\frac{64\pi}{3}$       (B)  $8\pi$       (C)  $\frac{8\pi}{3}$       (D)  $\frac{128\pi}{5}$       (E)  $\frac{32\pi}{5}$

2. Find the volume of the solid bounded by  $y = x^2$ ,  $x = 2$ , and  $y = 0$ , revolved about the  $y$ -axis.

- (A)  $\frac{16\pi}{3}$       (B)  $4\pi$       (C)  $\frac{32\pi}{5}$       (D)  $8\pi$       (E)  $\frac{8\pi}{3}$

3. Find the volume of the solid bounded by  $y = x^2$ ,  $x = 0$ ,  $y = 0$ , and  $y = 4$ , revolved about the  $y$ -axis.

- (A)  $8\pi$       (B)  $4\pi$       (C)  $\frac{64\pi}{3}$       (D)  $\frac{32\pi}{3}$       (E)  $\frac{16\pi}{3}$

4. Find the volume of the solid bounded by  $y = x^2$ ,  $y = 4$ , revolved about the  $x$ -axis.

- (A)  $\frac{64\pi}{5}$     (B)  $\frac{512\pi}{15}$     (C)  $\frac{256\pi}{5}$     (D)  $\frac{128\pi}{5}$     (E) none of these

5. Find the volume of the solid bounded by  $y = x^2$ ,  $y = 4$ , revolved about the *line*  $y = 4$ .

- (A)  $\frac{256\pi}{15}$     (B)  $\frac{256\pi}{5}$     (C)  $\frac{512\pi}{5}$     (D)  $\frac{512\pi}{15}$     (E)  $\frac{64\pi}{3}$