

Answers to Worksheet 23 - Solids of Revolution with Displaced Axes

$$\begin{array}{llll}
 1) \pi \int_0^2 (x^2)^2 dx & 2) \pi \int_{-2}^2 (-x^2 + 4)^2 dx & 3) \pi \int_0^1 (-y^2 + 1)^2 dy & 4) \pi \int_0^1 (\sqrt{y})^2 dy \\
 = \frac{32}{5}\pi \approx 20.106 & = \frac{512}{15}\pi \approx 107.233 & = \frac{8}{15}\pi \approx 1.676 & = \frac{1}{2}\pi \approx 1.571
 \end{array}$$

$$\begin{array}{lll}
 5) \pi \int_{-2}^0 ((3-x)^2 - (1+x^2)^2) dx & 6) \pi \int_0^2 ((-x^2+5)^2 - 1) dx & 7) \pi \int_{-1}^1 ((-y^2+2)^2 - 1) dy \\
 = \frac{284}{15}\pi \approx 59.481 & = \frac{416}{15}\pi \approx 87.127 & = \frac{56}{15}\pi \approx 11.729
 \end{array}$$

$$\begin{array}{ll}
 8) \pi \int_0^1 ((-y^2+6)^2 - (-y+4)^2) dy & 9) \pi \int_0^2 (x^2)^2 dx \\
 = \frac{298}{15}\pi \approx 62.413 & = \frac{32}{5}\pi \approx 20.106
 \end{array}$$

$$\begin{array}{l}
 10) \pi \int_0^2 ((x^2+2)^2 - 2^2) dx \\
 = \frac{256}{15}\pi \approx 53.617
 \end{array}$$