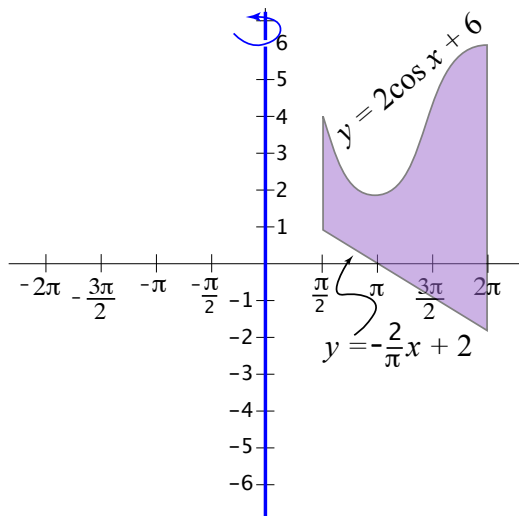1. **Set up** an integral for the volume of the solid formed by rotating the region shown about the y-axis. (For extra practice later, evaluate the integral.)

2. For each problem, **sketch the solid** formed by rotating the region enclosed by the curves whose equations are given

    (i) about the y-axis;

    (ii) about the line $x = -3$,

    and **set up** an integral for the volume of the solid. (For extra practice later, evaluate the integrals, if you can.)

    (a) (**) $y = \sin x, \quad y = 2x, \quad x = \dfrac{\pi}{2}$ (b) $y = \dfrac{1}{x}, \quad y = \dfrac{1}{x^2}, \quad x = 2$

3. For each problem, **sketch the solid** formed by rotating the region enclosed by the curves whose equations are given

    (i) about the x-axis;

    (ii) about the line $y = 8$,

    and **set up** an integral for the volume of the solid. (For extra practice later, evaluate the integrals, if you can.)

    (a) (*) $x = (y-1)^2, \quad x = 5y + 1$ (b) (**) $x = 3\log_4 y, \quad x = y^2 - 4y + 3$

    Hint: these curves intersect at $y = 1$ and $y = 4$.