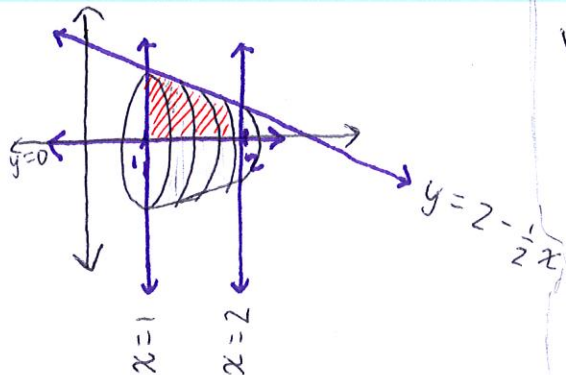
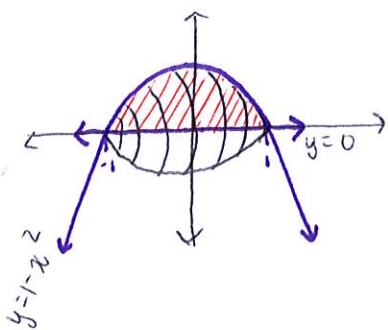


1. $y = 2 - \frac{1}{2}x$, $y = 0$, $x = 1$, $x = 2$



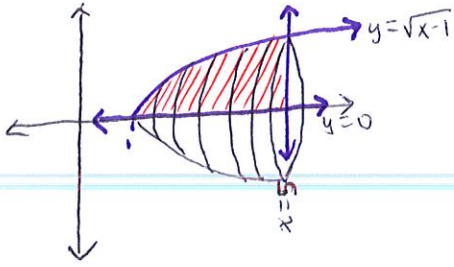
$$\begin{aligned}
 V &= \pi \int_1^2 (2 - \frac{1}{2}x)^2 dx = \pi \int_1^2 (4 - 2x + \frac{1}{4}x^2) dx \\
 &= \pi \left[4x - \frac{2x^2}{2} + \frac{1}{4} \cdot \frac{x^3}{3} \right]_1^2 \\
 &= \pi \left[(4 \cdot 2 - 2^2 + \frac{2^3}{12}) - (4 \cdot 1 - 1^2 + \frac{1^3}{12}) \right] \\
 &= \pi \left[(8 - 4 + \frac{2}{3}) - (4 - 1 + \frac{1}{12}) \right] \\
 &= \pi \left(\frac{56}{12} - \frac{37}{12} \right) = \boxed{\frac{19}{12} \pi}
 \end{aligned}$$

2. $y = 1 - x^2$, $y = 0$



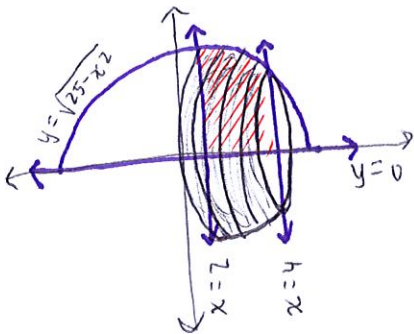
$$\begin{aligned}
 V &= \pi \int_{-1}^1 (1 - x^2)^2 dx = \pi \int_{-1}^1 (1 - 2x^2 + x^4) dx \\
 &= \pi \left[x - \frac{2x^3}{3} + \frac{x^5}{5} \right]_{-1}^1 \\
 &= \pi \left[(1 - \frac{2(1)^3}{3} + \frac{1^5}{5}) - (-1 - \frac{2(-1)^3}{3} + \frac{(-1)^5}{5}) \right] \\
 &= \pi \left[(1 - \frac{2}{3} + \frac{1}{5}) - (-1 + \frac{2}{3} - \frac{1}{5}) \right] \\
 &= \pi \left[\frac{15}{15} - \frac{10}{15} + \frac{3}{15} + \frac{15}{15} - \frac{10}{15} + \frac{3}{15} \right] \\
 &= \pi \left(\frac{16}{15} \right) = \boxed{\frac{16\pi}{15}}
 \end{aligned}$$

3. $y = \sqrt{x-1}$, $y = 0$, $x = 5$



$$\begin{aligned}
 V &= \pi \int_1^5 (\sqrt{x-1})^2 dx = \pi \int_1^5 (x-1) dx \\
 &= \pi \cdot \left[\frac{x^2}{2} - x \right]_1^5 \\
 &= \pi \left[\left(\frac{5^2}{2} - 5 \right) - \left(\frac{1^2}{2} - 1 \right) \right] \\
 &= \pi \left[\frac{25}{2} - 5 - \frac{1}{2} + 1 \right] = \pi \left(\frac{25}{2} - \frac{10}{2} - \frac{1}{2} + \frac{2}{2} \right) \\
 &= \pi \left(\frac{16}{2} \right) = \boxed{8\pi}
 \end{aligned}$$

4. $y = \sqrt{25-x^2}$, $y = 0$, $x = 2$, $x = 4$



$$\begin{aligned}
 V &= \pi \int_2^4 (\sqrt{25-x^2})^2 dx = \pi \int_2^4 (25-x^2) dx \\
 &= \pi \cdot \left(25x - \frac{x^3}{3} \Big|_2^4 \right) \\
 &= \pi \left[\left(25 \cdot 4 - \frac{4^3}{3} \right) - \left(25 \cdot 2 - \frac{2^3}{3} \right) \right] \\
 &= \pi \left[\left(100 - \frac{64}{3} \right) - \left(50 - \frac{8}{3} \right) \right] \\
 &= \pi \left(\frac{300}{3} - \frac{64}{3} - \frac{150}{3} + \frac{8}{3} \right) \\
 &= \pi \left(\frac{94}{3} \right) = \boxed{\frac{94\pi}{3}}
 \end{aligned}$$