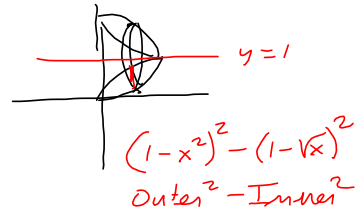
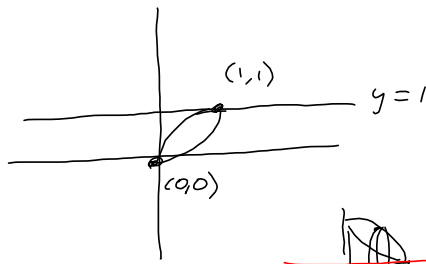
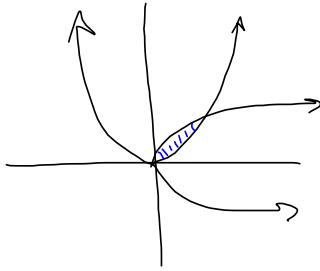


S<sub>5,2</sub> #11

$f(x) = y = x^2, x = y^2$ , about  $y = 1$



$$\pi \int_0^1 ((1-x^2)^2 - (1-\sqrt{x})^2) dx$$

$$= \pi \int_0^1 (x^4 - 2x^2 - x + 2\sqrt{x}) dx$$

$$= \pi \left[ \frac{1}{5}x^5 - \frac{2}{3}x^3 - \frac{1}{2}x^2 + 2\left(\frac{2}{3}x^{\frac{3}{2}}\right) \right]_0^1$$

$$= \pi \left[ \frac{1}{5} - \frac{2}{3} - \frac{1}{2} + \frac{4}{3} \right]$$

$$= \pi \left[ \frac{6-20-15+40}{30} \right]$$

$$= \boxed{\frac{11\pi}{30}}$$

Should fix it!

$$f' \quad f$$

$$x^{\frac{1}{2}} \quad \longmapsto \quad x^{\frac{3}{2}} = \frac{2}{3}x^{\frac{3}{2}}$$

$$1 - 2x^2 + x^4 - (1 - 2\sqrt{x} + x)$$

$$= 1 - 2x^2 + x^4 - 1 + 2\sqrt{x} - x$$

$$= x^4 - 2x^2 - x + 2\sqrt{x}$$

S<sub>5,2</sub> #31

$$\pi r^2 \Delta x \text{ so } \int \tan^2 x \, dx = \int (\sec^2 x - 1) \, dx$$