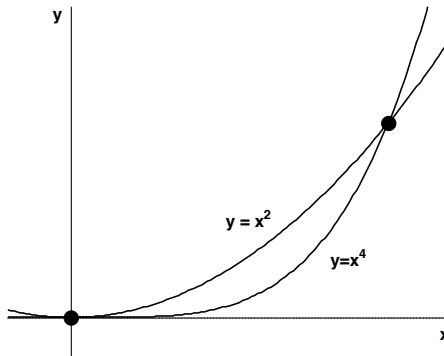


10. [15 points] Consider the area between the curves $y = x^2$ and $y = x^4$ in the positive quadrant as shown in the graph below. Use this area to answer the following questions.



- a. [5 points] Set up, but do not evaluate, a definite integral that describes the area described above. Write your final answer on the space provided.

$$\int_0^1 (x^2 - x^4) dx \text{ or } \int_0^1 (y^{1/4} - y^{1/2}) dy$$

- b. [5 points] Set up, but do not evaluate, a definite integral that describes the volume of the solid generated by revolving the area described above about the line $y = 2$. Write your final answer on the space provided.

$$\int_0^1 \pi((2 - x^4)^2 - (2 - x^2)^2) dx$$

- c. [5 points] Set up, but do not evaluate, a definite integral that describes the volume of the solid whose base is the area described above and whose cross-sections perpendicular to the x -axis are squares.

$$\int_0^1 (x^2 - x^4)^2 dx$$