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.

\[ \begin{array}{c}
\text{y} \\
\text{x}
\end{array} \]

\( y = x^2 \)
\( y = x^4 \)

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.

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.

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.