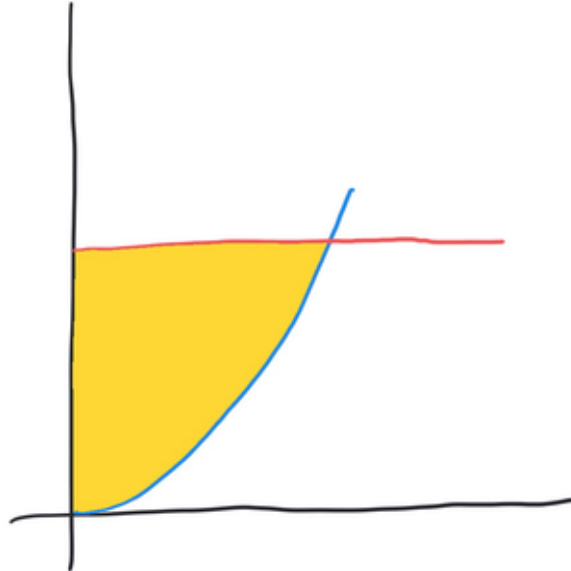


Problem 1. Here is a graph of $y = x^2/8$ in blue and $y = 3$ in red:



Form a solid of revolution by rotating the yellow region around the y -axis. Compute its area (a) using cylindrical shells and (b) using discs.

Problem 2. Find $\int x^3 \ln x \, dx$.