More slicing with volume

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The following problems give a region R bounded by the graph of a function $y = f(x)$, the x-axis, and lines $x = 1$ and $x = 4$. Do each of the following, and be sure to sketch the solids and draw cross sections when obtaining integrals:

a) Easy: Calculate the volume of the solid obtained by rotating R around the x-axis.
b) Harder: Calculate the volume of the solid obtained by rotating R around the line $y = -2$.
c) Harder: Calculate the volume of the solid with base R and cross section perpendicular to the x-axis in the shape of semicircles.
d) Harder: Calculate the volume of the solid obtained by rotating R around the line $x = -2$.
e) Just for fun: Remove the restriction $x = 4$ and make the region infinite in one direction. Which of the corresponding volumes is finite?

1) Let R be the region bounded by the curve $y = e^{-x}$, the x-axis, and the lines $x = 1$ and $x = 4$.

2) Let R be the region bounded by the curve $y = 1/x$, the x-axis, and the lines $x = 1$ and $x = 4$.

3) Let R be the region bounded by the curve $y = 1/\sqrt{x}$, the x-axis, and the lines $x = 1$ and $x = 4$.

4) Let R be the region bounded by the curve $y = 1/x^2$, the x-axis, and the lines $x = 1$ and $x = 4$.

5) Let R be the region bounded by the curve $y = x^{-2/3}$, the x-axis, and the lines $x = 1$ and $x = 4$.