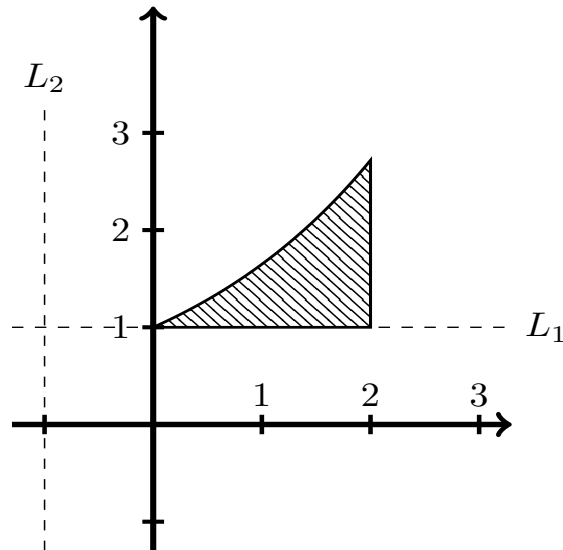**6.** [12 points]

The region bounded by the graph of $y = e^{0.5x}$, the line $y = 1$, and the line $x = 2$ is shown below. For each of the lines L_1 and L_2 write a definite integral that represents the volume of the solid object obtained by rotating the region around that line. You do not need to show your work or calculate the value of the integral.

a. [6 points] L_1:

> *Solution:*
>
> •Disks:
> $$\int_0^2 \pi (e^{0.5x} - 1)^2 dx$$
>
> •Washers: Intersection point $(2, e)$
> $$\int_1^e 2\pi(y-1)(2 - 2\ln y)dy$$

b. [6 points] L_2:

> *Solution:*
>
> •Disks: Intersection point $(2, e)$
> $$\int_1^e \pi((2+1)^2 - (2\ln(y)+1)^2)dy$$
>
> •Washers:
> $$\int_0^2 2\pi(1+x)(e^{0.5x} - 1)dx$$