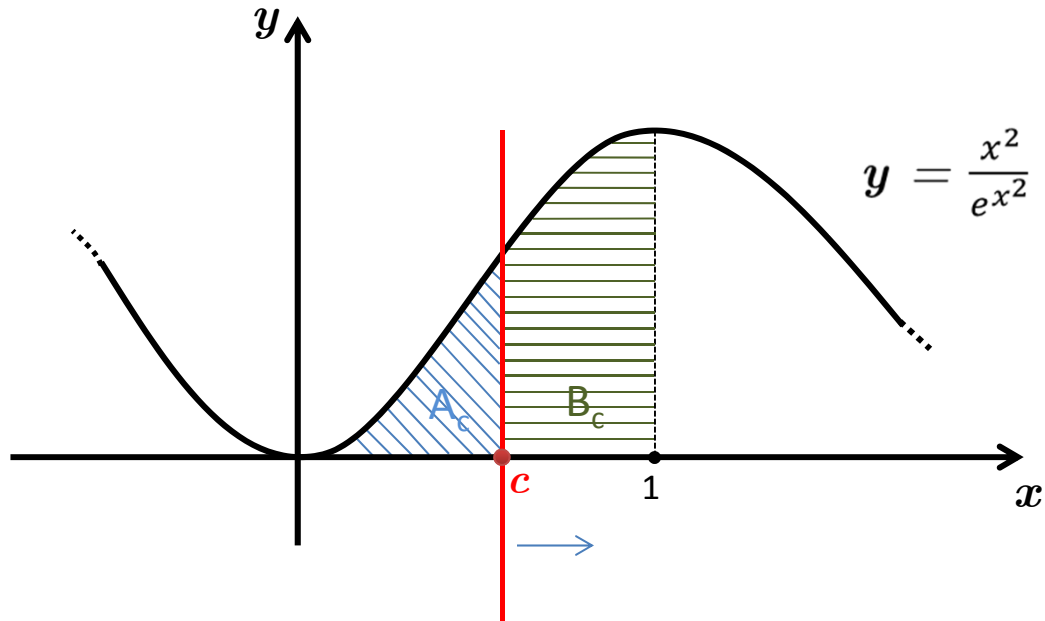


The line L in the figure above is moving from left to right at the rate of $\frac{3}{2}$ units per second. What is the rate at which the area of the region under the curve

$$y = \frac{x^2}{e^{x^2}}$$

that lies to the right of the y -axis and is being swept by L is changing?



Let A_c (resp. B_c) denote the area of the region under the curve

$$y = \frac{x^2}{e^{x^2}}$$

between the line $x=c$ and the y -axis (resp. the line $x=1$). Show that there exists exactly one c such that $A_c = B_c$.