

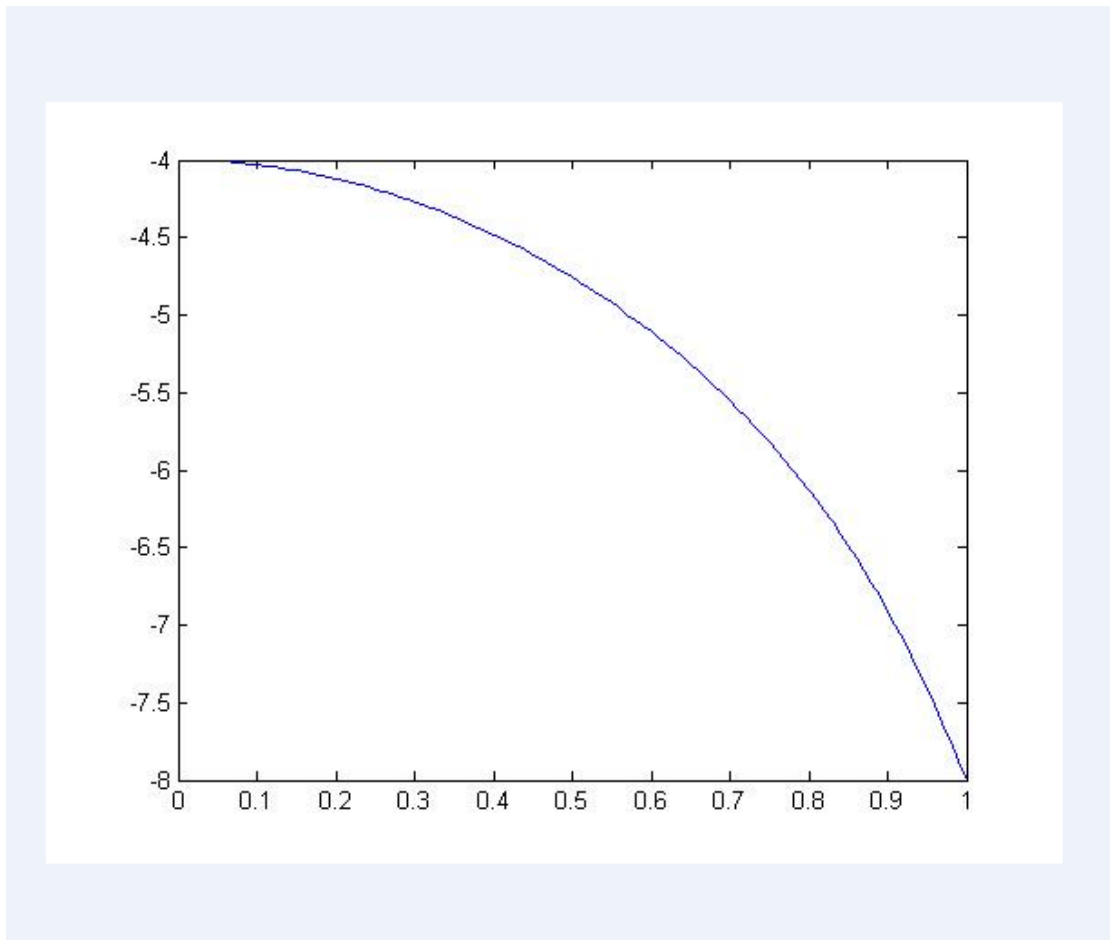
Show that the equation

$$2 = -(x^7 + 3x^2 + 2)$$

has at least one solution $x \in (0, 1)$.

Solution

Let's consider the function $y(x) = -x^7 - 3x^2 - 2 - 2$.



Here is the plot of $y(x)$ for $x \in (0, 1)$. We see that it has no zeros. So, the equation $2 = -(x^7 + 3x^2 + 2)$ has no solutions on $x \in (0, 1)$.