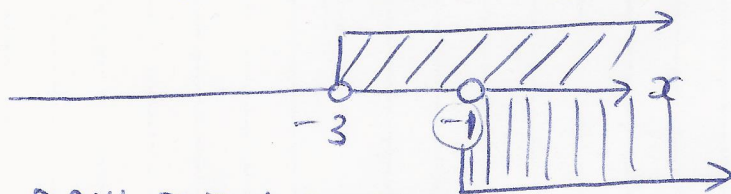


Example: Solve $\log_3(x+1) + \log_3(x+3) = 1$

Solution:

$$\log_3(x+1) + \log_3(x+3) = 1$$

D.A.V. $\begin{cases} x+1 > 0 \rightarrow x > -1 \\ x+3 > 0 \rightarrow x > -3 \end{cases}$



\therefore D.A.V.: $x > -1$ (overlap)

$$\log_3(x+1)(x+3) = 1$$

$$[(x+1)(x+3)] = 3^1 \text{ (definition of logarithm)}$$

$$x^2 + 4x + 3 = 3$$

$$x^2 + 4x = 0$$

$$x(x+4) = 0 \rightarrow x = 0 \text{ or } x = -4$$

\hookrightarrow not admissible!
as $x > -1$

\therefore Answer: $x = 0$