Estimating Logarithmic Functions

When estimating the value of a logarithmic function, Always go a little LARGER than your (linear) guess.

Note that the graph of the logarithmic function \( f(x) = \log_2 x \) is slightly ABOVE the graph of the red line (your guess) between the values of \( x = 4 \) and \( x = 8 \).

Ex) Estimate \( \log_2 6 \)

\[
\begin{align*}
\log_2 4 &= 2 & \text{Think : } 2^2 &= 4 \\
\log_2 6 &\approx 2.5 \rightarrow 2.6 & 2^{2.5} &\rightarrow 2^{2.6} \approx 6 \\
\log_2 8 &= 3 & 2^3 &= 8
\end{align*}
\]

Using a Calculator: \( \log_2 6 \approx 2.584962501 \)