1 Logarithmns

Perhaps the numbers most easy to provide irrational are certain logarithmns. Here is a proof by contradiction that $\log_2 3$ is irrational ($\log_2 3 \approx 1.58 > 0$).

Assume $\log_2 3$ is rational. For some positive integers m and n, we have

$$\log_2 3 = \frac{m}{n}.$$

It follows that

$$\begin{aligned} 2^{m/n} &= 3 \\ \left(2^{m/n}\right)^n &= 3^n \\ 2^m &= 3^n. \end{aligned}$$