1. Find the limit of the sequence, \( \sqrt{2}, \sqrt[3]{2}, \sqrt[4]{2}, \ldots \).

2. Find the values of \( x \) for which the series, 
\[
\sum_{n=1}^{\infty} \frac{\cos^n x}{2^n}
\]
converges, and find the sum of the series for those values of \( x \) for which it converges.

3. Find the values of \( p \) for which the series, 
\[
\sum_{n=1}^{\infty} \frac{\ln n}{n^p}
\]
is convergent.


5. Estimate \( \sum_{n=1}^{\infty} (2n + 1)^{-6} \) to five decimal places. How many terms would you need to add make this estimate?

Due in Wednesday 2\textsuperscript{nd} May.

N Malik
Instructor