Exercise 10.4 #62

Show that $\sum_{n=2}^{\infty}((\ln n)^q / n^p)$ diverges for $-\infty < q < \infty$ and $0 < p < 1$.

(*Hint*: Limit Comparison with an appropriate *p*-series.)

In case p=1, you could solve the problem by The Integral Test.
(*Hint*: By Section 10.3 Exercise 55.)