Problem statement a) Verify that the infinite series $\sum_{n=2}^{\infty} \frac{(-1)^n}{n(\ln(n))^2}$ converges. A computer gives the approximate value .84776 to 5 digit accuracy for the sum of this series. Find a specific partial sum which is guaranteed to give this number to 5 digit accuracy. Give evidence supporting your assertion.

b) Verify that the infinite series $\sum_{n=2}^{\infty} \frac{1}{n\sqrt{\ln(n)}}$ diverges. A computer gives the approximate value of 4.74561 for the $10{,}000^{\text{th}}$ partial sum. Are the partial sums of this series unbounded? If yes, find a specific partial sum which is guaranteed to be greater than 100. Give evidence supporting your assertion.

Comment In neither case is the "best possible" partial sum requested. Supporting evidence must be presented for the two partial sums given.