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| Suppose that $0<q<p$ and that $α\_{n}=α+O(n^{-p})$. Show that$ α\_{n}=α+O(n^{-q})$. |
| Make a table listing $h, h^{2},h^{3},$ and$ h^{4}$ for $h=0.5, 0.1, 0.01, $and$ 0.001$, and discuss the varying rates of convergence of these powers of $h$ as $h$ approaches zero. |