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Exercise 4.9

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If $\alpha < \beta$, then $\lim_{N\sim\infty} \frac{\alpha^N}{\beta^N} = \lim_{N\sim\infty} (\frac{\alpha}{\beta})^N = 0$

-1pt, this shows alpha^n = o(beta^n) but that doesn't really show "exponentially small," e.g. 1 = o(n) but 1/n isn't an exponentially small sequence

Let $\alpha = 1.1$, $\beta = 1.2$

For $N = 10$, absolute error $= \alpha^N = 1.1^{10} = 2.594$, relative error $= \frac{\alpha^N}{\beta^N} = (\frac{1.1}{1.2})^{10} = 0.419$

For $N = 100$, absolute error $= \alpha^N = 1.1^{100} = 13780.612$, relative error $= \frac{\alpha^N}{\beta^N} = (\frac{1.1}{1.2})^{100} = 0.000166...$

-1pt, relative error is alpha^n/(alpha^n + beta^n)