Partial Product 2

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For the first infinite product, $\prod_{n=1}^{\infty}(1+\frac{f(n)}{g(n)})$, I found it converges when you set $g(n)$'s function two degrees higher (or larger) than the numerator's degree. For example, just looking at the fraction piece, $\frac{n}{n^3}$ or $\frac{n^{54}}{n^{76}}$ works for the function to converge. I found that it diverges when these conditions aren't met. For example, when the highest degree in the the numerator matches the degree in the denominator like $\frac{n+1}{n-2}$ or if the degree in the numerator is higher than the degree in the denominator like $\frac{n^3+2}{3n}$. That's when the function diverges. The example I used for the class to converge was $\frac{n}{n^3+1}$, and this one converges to 2.68. An example for this one to diverge is $\frac{n}{n^2}$.

For the second infinite product, $\prod_{n=1}^{\infty}(1+b^n)$, I found it converges when $b<1$, and the bigger the number, the faster it will diverge. For example, $1+.95^n$ and $1+.05^n$ converge, but once b is higher or equal to one, for example, $1+1^n$ and $1+5^n$ the function diverges. The example I used in my code for this class to converge was $1+.5^n$ and it converges to 2.38. An example for this one to diverge is $1+10^n$.