

## I.9 Partial Product 2

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### **Deliverables**

#### **Equation 1**

There were a few patterns our group detected when dealing with this code. The first, is when the  $f_n$  is raised to a higher power than the  $g_n$ . When this is the case the graph diverges. When the  $g_n$  has a higher exponent by at least 2, then the series converges. As the exponent of  $g_n$  increases and gets greater than  $f_n$  by more than 2, the series converges quicker.

#### **Equation 2**

The second pattern we detected was with the second equation. When messing around with this equation, we only changed what  $b$  equals. This is simple to do because  $b$  is defined in python separately. We found when  $b=0$ , then the slope of the graph will just equal one. When  $b$  equals less than 1, but greater than 0 it converges. When  $b$  equals between -1 and 0, it oscillates first, and then converges. The greatest oscillation we saw was around -0.25. Finally when  $b$  equals greater than 1 the series diverges.