You will be given a set of 3000 numbers \(x_1, \ldots, x_{3000}, y_1, \ldots, y_{3000}\), and a set of numbers \(z_1, \ldots, z_{2000}\). These are related in the following way: there are numbers \(a_0, \ldots, a_9\) so that

\[
 z_j \simeq a_0 + a_1 x_j + a_2 y_j + a_3 x_j^2 + a_4 y_j^2 + a_5 x_j y_j + a_6 x_j^2 y_j + a_7 x_j y_j^2 + a_8 x_j^3 + a_9 y_j^3
\]

for each \(j\). Here \(\simeq\) means “is close to”.

Turn in a script that

- finds a good approximation for \(a_0, \ldots, a_9\).
- finds approximate values for \(z_{2001}, \ldots, z_{3000}\), assuming these are related to \(x_{2001}, \ldots, x_{3000}\) and \(y_{2001}, \ldots, y_{3000}\) as above.

Use only concatenations, matrix multiplies, and the backslash operator.