

Consider the list of lists

$L := \{ \{8, 29, 104, 293, 680\}, \{61, 112, 237, 496, 973\}, \{216, 309, 504, 861, 1464\}, \{557, 704, 989, 1472, 2237\}, \{1192, 1405, 1800, 2437, 3400\} \}$:

Let $g = g(x, y)$ be the unique polynomial of degree 4 in both x and y , such that $g(i, j) = L[i][j]$ $1 \leq i, j \leq 5$

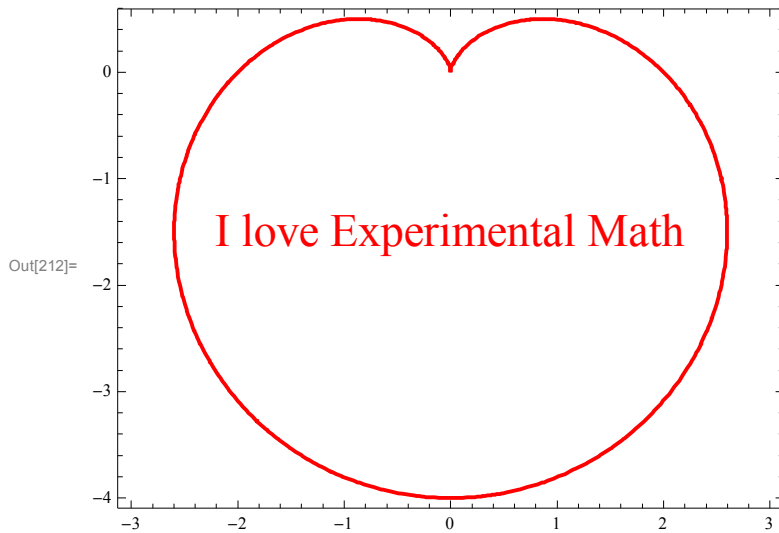
1. Use maple to find the polynomial g (as an expression in x and y , of degree 4 in x and degree 4 in y). [Hint, you can use procedure GenPol from C7.txt or C8.txt]
2. Using, xmaple, do:
plots[implicitplot](g,x=-6..6,y=-5..5,axes=none);
3. print it out.
4. Cut it out.
5. Write inside it: "I love Experimental Math".
6. Tape it on the door of Hill 704.

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In[209]:= L = {{8, 29, 104, 293, 680}, {61, 112, 237, 496, 973}, {216, 309, 504, 861, 1464},
             {557, 704, 989, 1472, 2237}, {1192, 1405, 1800, 2437, 3400}};
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$$f[x_, y_] = \sum_{i=0}^4 \sum_{j=0}^4 a[i, j] x^i y^j;$$

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f[x, y] /. Solve[Flatten[Table[f[i, j] == L[[i, j]], {i, 1, 5}, {j, 1, 5}]]]
ContourPlot[% == 0, {y, -3, 3}, {x, -4, 1/2},
             AspectRatio -> 3/4, ContourStyle -> Directive[Red, Thick],
             Epilog -> {Text[Style["I love Experimental Math", Red, Large], {0, -1.5}]}]
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Out[211]= {4 x^3 + x^4 - 4 y^2 + 4 x y^2 + 2 x^2 y^2 + y^4}
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Mathematica is better.