Contents


```
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% MATH 3890
% Machine Problem 10
% 30 Mar 2021

clc; clear; close all
```

Get Triangulation Data

```
[n, x, y, ~, TRI] = readtri;
```

Set up lists

```
[nb, ne, nt, v1, v2, v3, e1, e2, e3, ie1, ie2, tril, trir, bdy, ...
    vadj, eadj, adjstart, tadj, tstart, area, TRI] = trilists(x, y, TRI);
```

Prompt for d

```
% d = input('Enter the value of d: ');
d = 5;
```

Franke's function

```
f = @(x, y) franke2(x, y);
```

Compute coefficients

```
z = f(x, y);
c = scat0d(d,x,y,z,v1,v2,v3,e1,e2,e3,ie1,ie2);
```

Evaluate the spline

```
ng = 71;
a = min(x); b = max(x); aw = min(y); bw = max(y);
[xg, yg, g] = valspgrid(d, x, y, v1, v2, v3, e1, e2, e3, ie1, c, ng, ...
    a, b, aw, bw);
```

Plot the spline

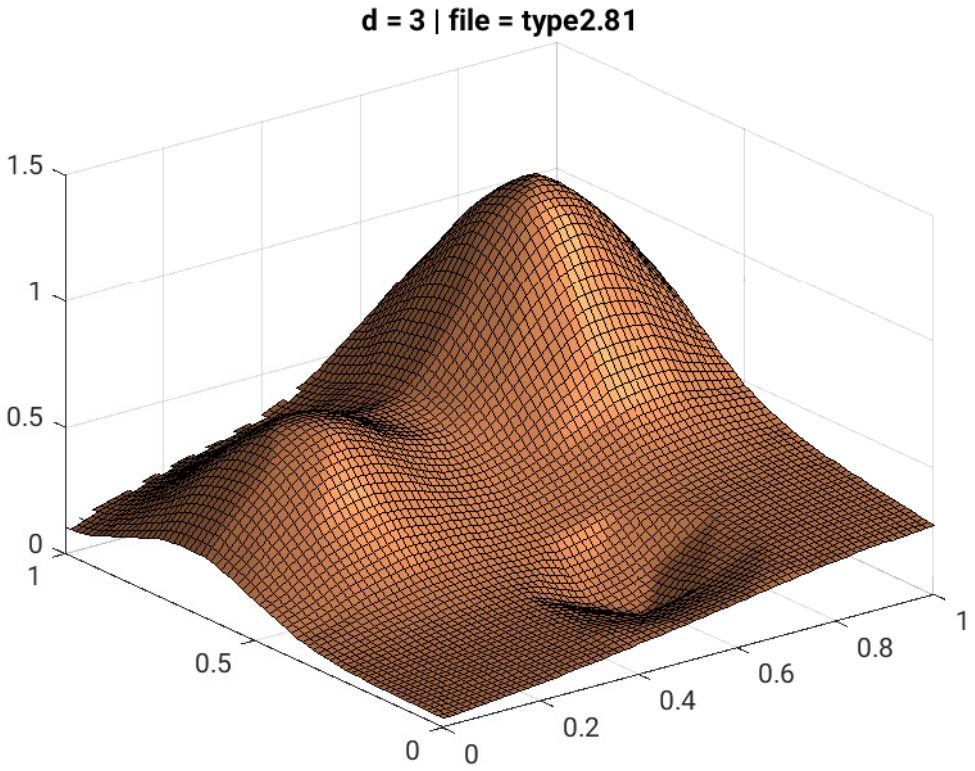
```
figure; surfl(xg,yg,g'); colormap(copper);
% titlestring = ['d = ', num2str(d), ' | file = type2.', num2str(289)];
% title(titlestring)
```

Compute errors

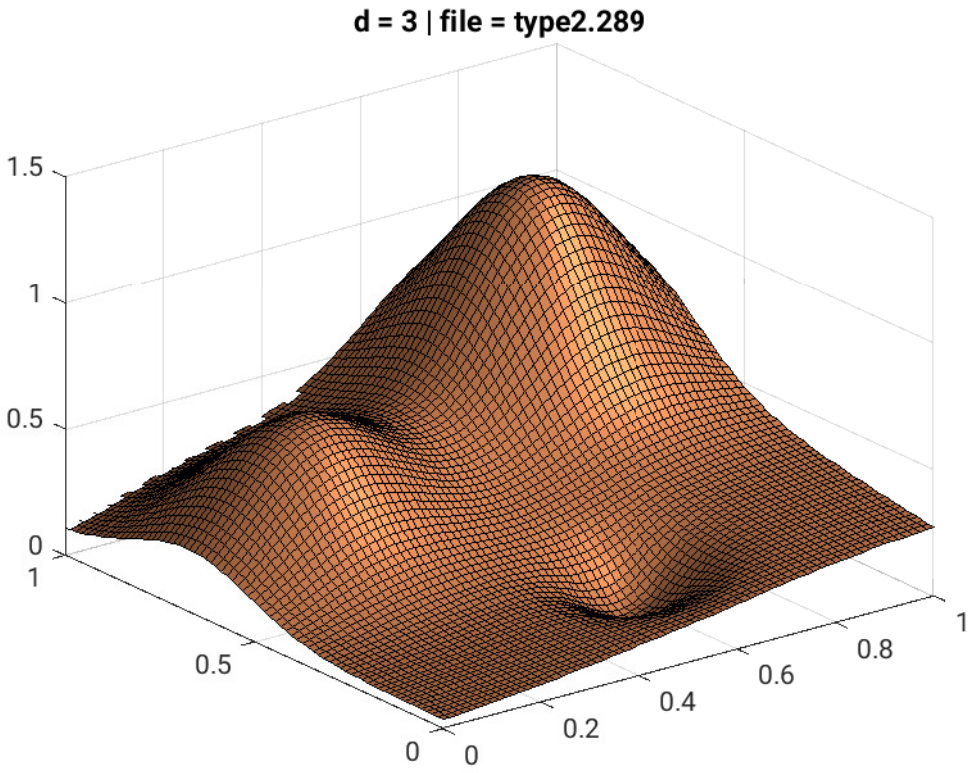
```
e = errg(xg,yg,g,@franke2);
fprintf('emax = %5.2e, RMS = %5.2e\n',norm(e,inf),erms(e));
```

MATLAB output

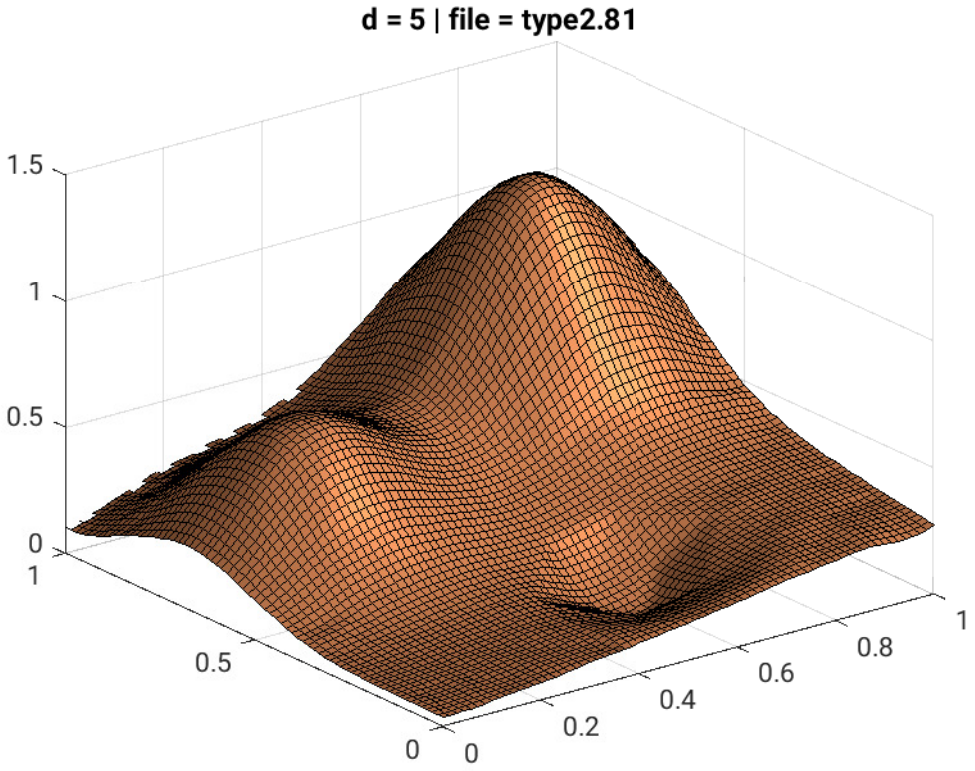
```
file name for triangulation   'type2.81'
emax = 4.05e-02, RMS = 5.56e-03
```



```
file name for triangulation   'type2.289'
emax = 5.86e-03, RMS = 5.60e-04
```



```
file name for triangulation   'type2.81'
emax = 3.71e-02, RMS = 4.55e-03
```



```
file name for triangulation   'type2.289'
emax = 3.53e-03, RMS = 2.85e-04
```