

```
GenerateRandomPolynomials[n_, vars_, numPolynomials_] :=
  Table[Sum[RandomInteger[{-10, 10}] × vars[[i]]^j,
    {i, Length[vars]}, {j, 0, n}], numPolynomials]
```

(*Select variables 'vars', degree per polynomial 'n',
and number of polynomials to generate 'numPolynomials'.*)

```
vars = {x, y, z};
```

```
n = 2;
```

```
numPolynomials = 10;
```

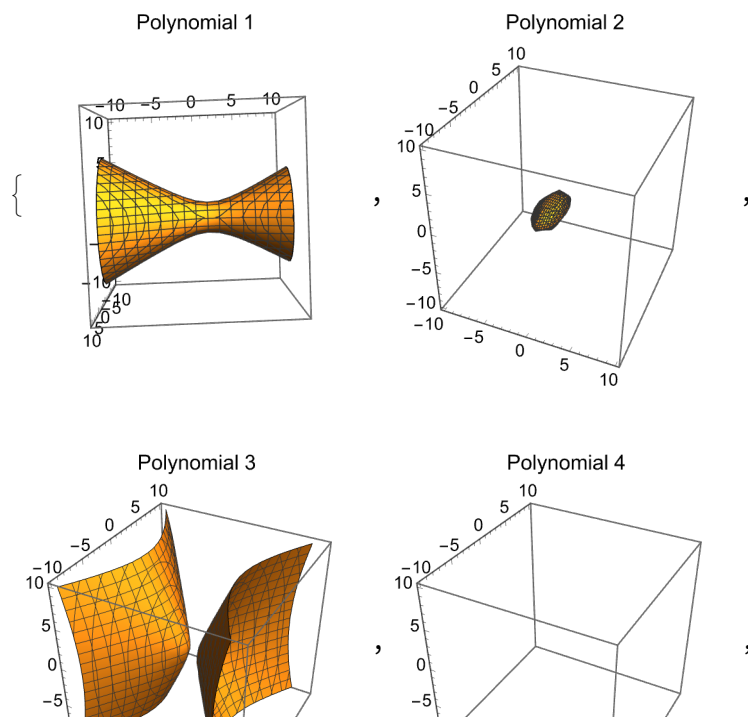
```
randomPolynomials = GenerateRandomPolynomials[n, vars, numPolynomials]
```

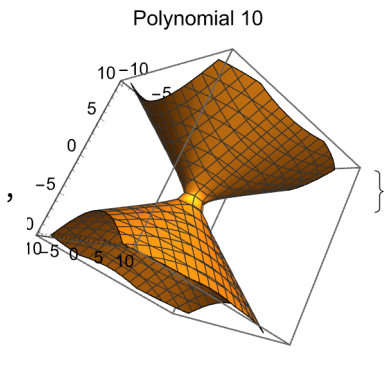
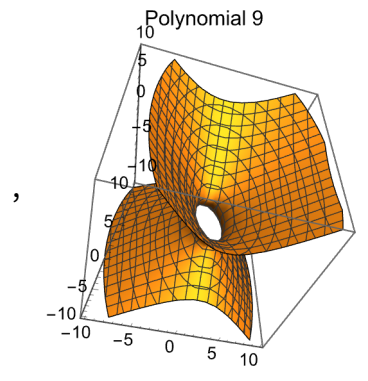
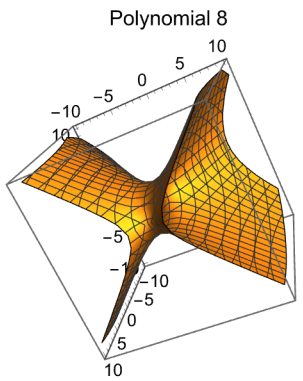
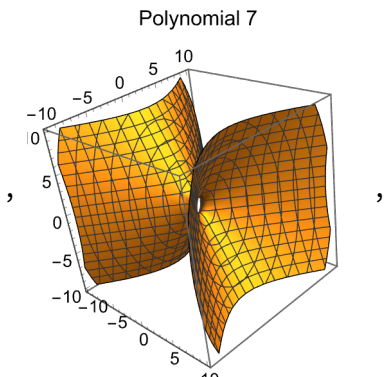
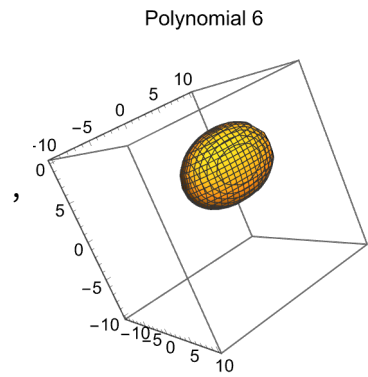
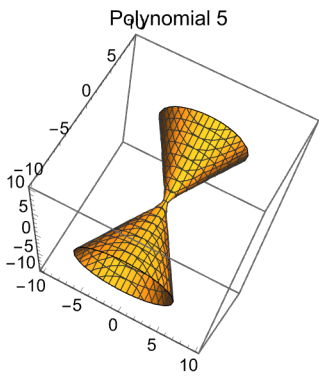
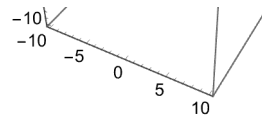
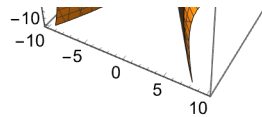
Out[]=

```
{5 - 4 x^2 - 3 y + y^2 - 8 z - 3 z^2, 7 - 10 x - 5 x^2 - 3 y - y^2 - 7 z^2,
-3 + 9 x + 9 x^2 + y - 5 y^2 - 4 z - 2 z^2, -10 - 9 x - 3 x^2 + 5 y - 5 y^2 + 4 z - 3 z^2,
1 + 2 x + 3 x^2 - y^2 + 5 z + 6 z^2, -10 - 5 x + 8 x^2 - 9 y + y^2 - 9 z + 2 z^2,
3 - 2 x + 9 x^2 - y - 8 y^2 - 2 z - 3 z^2, -1 - 8 x + x^2 - 4 y^2 - 9 z + 4 z^2,
-5 - 8 x + 7 x^2 + 10 y + 2 y^2 - 5 z - 6 z^2, -8 + 2 x + 9 x^2 + 6 y + 5 y^2 - 4 z - 10 z^2}
```

```
In[ ]:= Table[ContourPlot3D[randomPolynomials[[i]] == 0, {x, -10, 10},
  {y, -10, 10}, {z, -10, 10}, PlotLabel -> "Polynomial " <> ToString[i],
  ContourStyle -> Thick], {i, numPolynomials}]
```

Out[]=





$In[] :=$