Define Cartesian spherical harmonics.

In[3]:=
```
Ylm[l_, m_, x_, y_, z_] :=
 Sqrt[((2 l + 1) (l - m)!)/(4 π (l + m)!)] LegendreP[l, m, z/Sqrt[x^2 + y^2 + z^2]] ((x + I y)/Sqrt[x^2 + y^2])^m
```

Define complex spherical harmonics.

In[4]:=
```
YlmComplex[l_, m_, x_, y_, z_] :=
 FullSimplify[Ylm[l, m, x, y, z], {x ∈ Reals, y ∈ Reals, z ∈ Reals}]
```

Define real spherical harmonics.

In[5]:=
```
YlmReal[l_, m_, x_, y_, z_] :=
 FullSimplify[Piecewise[{{I/Sqrt[2] (Ylm[l, m, x, y, z] - (-1)^m Ylm[l, -m, x, y, z]), m < 0},
   {Ylm[l, 0, x, y, z], m == 0}, {1/Sqrt[2] (Ylm[l, -m, x, y, z] + (-1)^m Ylm[l, m, x, y, z]),
    m > 0}}], {x ∈ Reals, y ∈ Reals, z ∈ Reals}]
```

Print real harmonics with counter.

In[9]:=
```
For[l = 0, l < 2, l++,
 For[m = -l, m < l + 1, m++, Print["Y[counter] = ", CForm[YlmReal[l, m, x, y, z]], ";"];
  Print["Yx[counter] = ", CForm[D[YlmReal[l, m, x, y, z], x] // FullSimplify], ";"];
  Print["Yy[counter] = ", CForm[D[YlmReal[l, m, x, y, z], y] // FullSimplify], ";"];
  Print["Yz[counter] = ", CForm[D[YlmReal[l, m, x, y, z], z] // FullSimplify], ";"];
  Print["counter++;"]];
 Print["if (l == ", l, ") return;" ]]
```

```
Y[counter] = 1/(2.*Sqrt(Pi));
Yx[counter] = 0;
Yy[counter] = 0;
Yz[counter] = 0;
counter++;
if (l == 0) return;
Y[counter] = (Sqrt(3/Pi)*y)/(2.*Sqrt(Power(x,2) + Power(y,2) + Power(z,2)));
Yx[counter] = -(Sqrt(3/Pi)*x*y)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));
Yy[counter] = (Sqrt(3/Pi)*(Power(x,2) +
    Power(z,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));
Yz[counter] = -(Sqrt(3/Pi)*y*z)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));
counter++;
Y[counter] = (Sqrt(3/Pi)*z)/(2.*Sqrt(Power(x,2) + Power(y,2) + Power(z,2)));
Yx[counter] = -(Sqrt(3/Pi)*x*z)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));
Yy[counter] = -(Sqrt(3/Pi)*y*z)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));
Yz[counter] = (Sqrt(3/Pi)*(Power(x,2) +
    Power(y,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));
counter++;
Y[counter] = (Sqrt(3/Pi)*x)/(2.*Sqrt(Power(x,2) + Power(y,2) + Power(z,2)));
Yx[counter] = (Sqrt(3/Pi)*(Power(y,2) +
    Power(z,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));
Yy[counter] = -(Sqrt(3/Pi)*x*y)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));
Yz[counter] = -(Sqrt(3/Pi)*x*z)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));
counter++;
if (l == 1) return;
```

Print complex harmonics with counter.

In[12]:=

```
For[l = 0, l < 7, l++, For[m = -l, m < l + 1, m++,
  Print["Y[counter] = ", CForm[YlmComplex[l, m, x, y, z]], ";"];
  Print["Yx[counter] = ",
   CForm[D[YlmComplex[l, m, x, y, z], x] // FullSimplify], ";"];
  Print["Yy[counter] = ", CForm[D[YlmComplex[l, m, x, y, z], y] // FullSimplify],
   ";"];
  Print["Yz[counter] = ", CForm[D[YlmComplex[l, m, x, y, z], z] // FullSimplify],
   ";"];
  Print["counter++;"]];
 Print["if (l == ", l, ") return;"]]
```

```
Y[counter] = 1/(2.*Sqrt(Pi));

Yx[counter] = 0;

Yy[counter] = 0;

Yz[counter] = 0;

counter++;

if (l == 0) return;

Y[counter] =
 (Sqrt(3/(2.*Pi))*(x - Complex(0,1)*y))/(2.*Sqrt(Power(x,2) + Power(y,2) + Power(z,2)));

Yx[counter] = (Sqrt(3/(2.*Pi))*(Complex(0,1)*x*y + Power(y,2)
    + Power(z,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

Yy[counter] = (Complex(0,-0.5)*Sqrt(3/(2.*Pi))*(Power(x,2) - Complex(0,1)*x*y
    + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),1.5);

Yz[counter] = -(Sqrt(3/(2.*Pi))*(x -
    Complex(0,1)*y)*z)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

counter++;

Y[counter] = (Sqrt(3/Pi)*z)/(2.*Sqrt(Power(x,2) + Power(y,2) + Power(z,2)));

Yx[counter] = -(Sqrt(3/Pi)*x*z)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

Yy[counter] = -(Sqrt(3/Pi)*y*z)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

Yz[counter] = (Sqrt(3/Pi)*(Power(x,2) +
    Power(y,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

counter++;

Y[counter] =
 -(Sqrt(3/(2.*Pi))*(x + Complex(0,1)*y))/(2.*Sqrt(Power(x,2) + Power(y,2) + Power(z,2)))
 ;

Yx[counter] = (Complex(0,0.5)*Sqrt(3/(2.*Pi))*(x*y + Complex(0,1)*(Power(y,2)
    + Power(z,2))))/Power(Power(x,2) + Power(y,2) + Power(z,2),1.5);

Yy[counter] = (Complex(0,-0.5)*Sqrt(3/(2.*Pi))*(Power(x,2) + Complex(0,1)*x*y
    + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),1.5);

Yz[counter] = (Sqrt(3/(2.*Pi))*(x +
    Complex(0,1)*y)*z)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

counter++;

if (l == 1) return;

Y[counter] = (Sqrt(15/(2.*Pi))*Power(x -
    Complex(0,1)*y,2))/(4.*(Power(x,2) + Power(y,2) + Power(z,2)));

Yx[counter] = (Sqrt(15/(2.*Pi))*(x - Complex(0,1)*y)*(Complex(0,1)*x*y + Power(y,2)
    + Power(z,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yy[counter] =
 (Complex(0,-0.5)*Sqrt(15/(2.*Pi))*(x - Complex(0,1)*y)*(Power(x,2) - Complex(0,1)*x*y
    + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),2);
```

```
Yz[counter] = -(Sqrt(15/(2.*Pi))*Power(x -
    Complex(0,1)*y,2)*z)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

counter++;

Y[counter] =
 (Sqrt(15/(2.*Pi))*(x - Complex(0,1)*y)*z)/(2.*(Power(x,2) + Power(y,2) + Power(z,2)));

Yx[counter] = (Sqrt(15/(2.*Pi))*z*(-Power(x - Complex(0,1)*y,2)
    + Power(z,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yy[counter] = (Complex(0,-0.5)*Sqrt(15/(2.*Pi))*z*(Power(x - Complex(0,1)*y,2)
    + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),2);

Yz[counter] = (Sqrt(15/(2.*Pi))*(x - Complex(0,1)*y)*(Power(x,2) + Power(y,2)
    - Power(z,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

counter++;

Y[counter] = -(Sqrt(5/Pi)*(Power(x,2) + Power(y,2)
    - 2*Power(z,2)))/(4.*(Power(x,2) + Power(y,2) + Power(z,2)));

Yx[counter] =
 (-3*Sqrt(5/Pi)*x*Power(z,2))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yy[counter] =
 (-3*Sqrt(5/Pi)*y*Power(z,2))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yz[counter] = (3*Sqrt(5/Pi)*(Power(x,2) +
    Power(y,2))*z)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

counter++;

Y[counter] =
 -(Sqrt(15/(2.*Pi))*(x + Complex(0,1)*y)*z)/(2.*(Power(x,2) + Power(y,2) + Power(z,2)));

Yx[counter] = -(Sqrt(15/(2.*Pi))*z*(-Power(x + Complex(0,1)*y,2)
    + Power(z,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yy[counter] = (Sqrt(15/(2.*Pi))*(x + Complex(0,1)*(y - z))*z*(Complex(0,-1)*x
    + y + z))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yz[counter] = -(Sqrt(15/(2.*Pi))*(x + Complex(0,1)*y)*(Power(x,2) + Power(y,2)
    - Power(z,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

counter++;

Y[counter] = (Sqrt(15/(2.*Pi))*Power(x +
    Complex(0,1)*y,2))/(4.*(Power(x,2) + Power(y,2) + Power(z,2)));

Yx[counter] = (Sqrt(15/(2.*Pi))*(x + Complex(0,1)*y)*(Complex(0,-1)*x*y +
    Power(y,2) + Power(z,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yy[counter] =
 (Complex(0,0.5)*Sqrt(15/(2.*Pi))*(x + Complex(0,1)*y)*(Power(x,2) + Complex(0,1)*x*y
    + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),2);

Yz[counter] = -(Sqrt(15/(2.*Pi))*Power(x +
    Complex(0,1)*y,2)*z)/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

counter++;
```

```
if (l == 2) return;

Y[counter] = (Sqrt(35/Pi)*Power(x -
   Complex(0,1)*y,3))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

Yx[counter] =
 (3*Sqrt(35/Pi)*Power(x - Complex(0,1)*y,2)*(Complex(0,1)*x*y + Power(y,2) +
   Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yy[counter] = (Complex(0,-0.375)*Sqrt(35/Pi)*Power(x - Complex(0,1)*y,2)*(Power(x,2) -
   Complex(0,1)*x*y + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),2.5);

Yz[counter] = (-3*Sqrt(35/Pi)*Power(x -
   Complex(0,1)*y,3)*z)/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

counter++;

Y[counter] = (Sqrt(105/(2.*Pi))*Power(x -
   Complex(0,1)*y,2)*z)/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

Yx[counter] =
 -(Sqrt(105/(2.*Pi))*(x - Complex(0,1)*y)*z*(Power(x,2) - Complex(0,3)*x*y -
   2*(Power(y,2) + Power(z,2))))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yy[counter] = (Complex(0,-0.25)*Sqrt(105/(2.*Pi))*(x
   - Complex(0,1)*y)*z*(2*Power(x,2) - Complex(0,3)*x*y - Power(y,2)
   + 2*Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),2.5);

Yz[counter] = (Sqrt(105/(2.*Pi))*Power(x - Complex(0,1)*y,2)*(Power(x,2) + Power(y,2)
   - 2*Power(z,2)))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

counter++;

Y[counter] = -(Sqrt(21/Pi)*(x - Complex(0,1)*y)*(Power(x,2) + Power(y,2)
   - 4*Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

Yx[counter] =
 (Sqrt(21/Pi)*(Power(x - Complex(0,1)*y,2)*y*(Complex(0,-1)*x + y) + (-11*Power(x,2)
   + Complex(0,14)*x*y + 3*Power(y,2))*Power(z,2) +
   4*Power(z,4)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yy[counter] =
 (Complex(0,0.125)*Sqrt(21/Pi)*(x*Power(x - Complex(0,1)*y,2)*(x + Complex(0,1)*y)
   + (-3*Power(x,2) + Complex(0,14)*x*y + 11*Power(y,2))*Power(z,2)
   - 4*Power(z,4)))/Power(Power(x,2) + Power(y,2) + Power(z,2),2.5);

Yz[counter] = (Sqrt(21/Pi)*(x - Complex(0,1)*y)*z*(11*(Power(x,2) + Power(y,2))
   - 4*Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

counter++;

Y[counter] = (Sqrt(7/Pi)*z*(-3*(Power(x,2) + Power(y,2)) +
   2*Power(z,2)))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

Yx[counter] = (3*Sqrt(7/Pi)*x*z*(Power(x,2) + Power(y,2) -
   4*Power(z,2)))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yy[counter] = (3*Sqrt(7/Pi)*y*z*(Power(x,2) + Power(y,2) -
   4*Power(z,2)))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));
```

```
Yz[counter] = (-3*Sqrt(7/Pi)*(Power(x,2) + Power(y,2))*(Power(x,2) + Power(y,2)
    - 4*Power(z,2)))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

counter++;

Y[counter] = (Sqrt(21/Pi)*(x + Complex(0,1)*y)*(Power(x,2) + Power(y,2)
    - 4*Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

Yx[counter] =
 (Sqrt(21/Pi)*(Complex(0,-1)*(x - Complex(0,1)*y)*Power(x + Complex(0,1)*y,2)*y
    + (x + Complex(0,1)*y)*(11*x + Complex(0,3)*y)*Power(z,2) -
    4*Power(z,4)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yy[counter] =
 (Complex(0,0.125)*Sqrt(21/Pi)*(x*(x - Complex(0,1)*y)*Power(x + Complex(0,1)*y,2)
    - (x + Complex(0,1)*y)*(3*x + Complex(0,11)*y)*Power(z,2) -
    4*Power(z,4)))/Power(Power(x,2) + Power(y,2) + Power(z,2),2.5);

Yz[counter] = -(Sqrt(21/Pi)*(x + Complex(0,1)*y)*z*(11*(Power(x,2) + Power(y,2))
    - 4*Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

counter++;

Y[counter] = (Sqrt(105/(2.*Pi))*Power(x +
    Complex(0,1)*y,2)*z)/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

Yx[counter] =
 -(Sqrt(105/(2.*Pi))*(x + Complex(0,1)*y)*z*(Power(x,2) + Complex(0,3)*x*y -
    2*(Power(y,2) + Power(z,2))))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yy[counter] = (Complex(0,0.25)*Sqrt(105/(2.*Pi))*(x
    + Complex(0,1)*y)*z*(2*Power(x,2) + Complex(0,3)*x*y - Power(y,2)
    + 2*Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),2.5);

Yz[counter] = (Sqrt(105/(2.*Pi))*Power(x + Complex(0,1)*y,2)*(Power(x,2) + Power(y,2)
    - 2*Power(z,2)))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

counter++;

Y[counter] = -(Sqrt(35/Pi)*Power(x +
    Complex(0,1)*y,3))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),1.5));

Yx[counter] = (Complex(0,0.375)*Sqrt(35/Pi)*Power(x
    + Complex(0,1)*y,2)*(x*y + Complex(0,1)*(Power(y,2) +
    Power(z,2))))/Power(Power(x,2) + Power(y,2) + Power(z,2),2.5);

Yy[counter] = (Complex(0,-0.375)*Sqrt(35/Pi)*Power(x + Complex(0,1)*y,2)*(Power(x,2) +
    Complex(0,1)*x*y + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),2.5);

Yz[counter] = (3*Sqrt(35/Pi)*Power(x +
    Complex(0,1)*y,3)*z)/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

counter++;

if (l == 3) return;

Y[counter] = (3*Sqrt(35/(2.*Pi))*Power(x -
    Complex(0,1)*y,4))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));
```

```
Yx[counter] =
 (3*Sqrt(35/(2.*Pi))*Power(x - Complex(0,1)*y,3)*(Complex(0,1)*x*y + Power(y,2)
   + Power(z,2)))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yy[counter] =
 (Complex(0,-0.75)*Sqrt(35/(2.*Pi))*Power(x - Complex(0,1)*y,3)*(Power(x,2) -
   Complex(0,1)*x*y + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),3);

Yz[counter] = (-3*Sqrt(35/(2.*Pi))*Power(x -
   Complex(0,1)*y,4)*z)/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

counter++;

Y[counter] = (3*Sqrt(35/Pi)*Power(x -
   Complex(0,1)*y,3)*z)/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yx[counter] =
 (-3*Sqrt(35/Pi)*Power(x - Complex(0,1)*y,2)*z*(Power(x,2) - Complex(0,4)*x*y -
   3*(Power(y,2) + Power(z,2))))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yy[counter] =
 (Complex(0,-0.375)*Sqrt(35/Pi)*Power(x - Complex(0,1)*y,2)*z*(3*Power(x,2) -
   Complex(0,4)*x*y - Power(y,2) + 3*Power(z,2)))/Power(Power(x,2)
   + Power(y,2) + Power(z,2),3);

Yz[counter] = (3*Sqrt(35/Pi)*Power(x - Complex(0,1)*y,3)*(Power(x,2) + Power(y,2)
   - 3*Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

counter++;

Y[counter] = (-3*Sqrt(5/(2.*Pi))*Power(x - Complex(0,1)*y,2)*(Power(x,2) + Power(y,2)
   - 6*Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yx[counter] =
 (3*Sqrt(5/(2.*Pi))*(x - Complex(0,1)*y)*(Power(x - Complex(0,1)*y,2)*y*(Complex(0,-1)*x
   + y) + (-8*Power(x,2) + Complex(0,13)*x*y + 5*Power(y,2))*Power(z,2)
   + 6*Power(z,4)))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yy[counter] =
 (3*Sqrt(5/(2.*Pi))*(Complex(0,1)*x + y)*(x*Power(x - Complex(0,1)*y,2)*(x +
   Complex(0,1)*y) + (-5*Power(x,2) + Complex(0,13)*x*y + 8*Power(y,2))*Power(z,2)
   - 6*Power(z,4)))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yz[counter] =
 (3*Sqrt(5/(2.*Pi))*Power(x - Complex(0,1)*y,2)*z*(4*(Power(x,2) + Power(y,2))
   - 3*Power(z,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

counter++;

Y[counter] = (-3*Sqrt(5/Pi)*(x - Complex(0,1)*y)*z*(3*(Power(x,2) + Power(y,2))
   - 4*Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yx[counter] =
 (3*Sqrt(5/Pi)*z*(3*Power(x - Complex(0,1)*y,3)*(x + Complex(0,1)*y) + (-21*Power(x,2)
   + Complex(0,22)*x*y + Power(y,2))*Power(z,2) +
   4*Power(z,4)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));
```

```
Yy[counter] =
 (3*Sqrt(5/Pi)*z*(-3*(x + Complex(0,1)*y)*Power(Complex(0,1)*x + y,3) - Complex(0,1)*(x
   - Complex(0,1)*y)*(x - Complex(0,21)*y)*Power(z,2) -
   Complex(0,4)*Power(z,4)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yz[counter] = (-3*Sqrt(5/Pi)*(x - Complex(0,1)*y)*(3*Power(Power(x,2)
   + Power(y,2),2) - 21*(Power(x,2) + Power(y,2))*Power(z,2) +
   4*Power(z,4)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

counter++;

Y[counter] =
 (9*Power(Power(x,2) + Power(y,2),2) - 72*(Power(x,2) + Power(y,2))*Power(z,2) +
   24*Power(z,4))/(16.*Sqrt(Pi)*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yx[counter] = (15*x*Power(z,2)*(3*(Power(x,2) + Power(y,2)) -
   4*Power(z,2)))/(4.*Sqrt(Pi)*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yy[counter] = (15*y*Power(z,2)*(3*(Power(x,2) + Power(y,2)) -
   4*Power(z,2)))/(4.*Sqrt(Pi)*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yz[counter] = (15*(Power(x,2) + Power(y,2))*z*(-3*(Power(x,2) + Power(y,2)) +
   4*Power(z,2)))/(4.*Sqrt(Pi)*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

counter++;

Y[counter] = (3*Sqrt(5/Pi)*(x + Complex(0,1)*y)*z*(3*(Power(x,2) + Power(y,2))
   - 4*Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yx[counter] =
 (-3*Sqrt(5/Pi)*z*(3*(x - Complex(0,1)*y)*Power(x + Complex(0,1)*y,3) - (x +
   Complex(0,1)*y)*(21*x + Complex(0,1)*y)*Power(z,2) +
   4*Power(z,4)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yy[counter] =
 (Complex(0,0.375)*Sqrt(5/Pi)*z*(3*(x - Complex(0,1)*y)*Power(x + Complex(0,1)*y,3)
   - (x + Complex(0,1)*y)*(x + Complex(0,21)*y)*Power(z,2) -
   4*Power(z,4)))/Power(Power(x,2) + Power(y,2) + Power(z,2),3);

Yz[counter] =
 (3*Sqrt(5/Pi)*(x + Complex(0,1)*y)*(3*Power(Power(x,2) + Power(y,2),2) - 21*(Power(x,2)
   + Power(y,2))*Power(z,2) + 4*Power(z,4)))/(8.*Power(Power(x,2)
   + Power(y,2) + Power(z,2),3));

counter++;

Y[counter] = (-3*Sqrt(5/(2.*Pi))*Power(x + Complex(0,1)*y,2)*(Power(x,2) + Power(y,2)
   - 6*Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yx[counter] =
 (3*Sqrt(5/(2.*Pi))*(x + Complex(0,1)*y)*(Power(x + Complex(0,1)*y,2)*y*(Complex(0,1)*x
   + y) - (x + Complex(0,1)*y)*(8*x + Complex(0,5)*y)*Power(z,2) +
   6*Power(z,4)))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yy[counter] = (3*Sqrt(5/(2.*Pi))*(Complex(0,-1)*x + y)*(x*(x - Complex(0,1)*y)*Power(x +
   Complex(0,1)*y,2) - (x + Complex(0,1)*y)*(5*x + Complex(0,8)*y)*Power(z,2)
   - 6*Power(z,4)))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));
```

```
Yz[counter] =
 (3*Sqrt(5/(2.*Pi))*Power(x + Complex(0,1)*y,2)*z*(4*(Power(x,2) + Power(y,2))
   - 3*Power(z,2)))/(2.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

counter++;

Y[counter] = (-3*Sqrt(35/Pi)*Power(x +
   Complex(0,1)*y,3)*z)/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yx[counter] =
 (3*Sqrt(35/Pi)*Power(x + Complex(0,1)*y,2)*z*(Power(x,2) + Complex(0,4)*x*y -
   3*(Power(y,2) + Power(z,2))))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yy[counter] =
 (Complex(0,-0.375)*Sqrt(35/Pi)*Power(x + Complex(0,1)*y,2)*z*(3*Power(x,2) +
   Complex(0,4)*x*y - Power(y,2) + 3*Power(z,2)))/Power(Power(x,2)
   + Power(y,2) + Power(z,2),3);

Yz[counter] = (-3*Sqrt(35/Pi)*Power(x + Complex(0,1)*y,3)*(Power(x,2) + Power(y,2)
   - 3*Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

counter++;

Y[counter] = (3*Sqrt(35/(2.*Pi))*Power(x +
   Complex(0,1)*y,4))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),2));

Yx[counter] =
 (3*Sqrt(35/(2.*Pi))*Power(x + Complex(0,1)*y,3)*(Complex(0,-1)*x*y + Power(y,2)
   + Power(z,2)))/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yy[counter] =
 (Complex(0,0.75)*Sqrt(35/(2.*Pi))*Power(x + Complex(0,1)*y,3)*(Power(x,2) +
   Complex(0,1)*x*y + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),3);

Yz[counter] = (-3*Sqrt(35/(2.*Pi))*Power(x +
   Complex(0,1)*y,4)*z)/(4.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

counter++;

if (l == 4) return;

Y[counter] = (3*Sqrt(77/Pi)*Power(x -
   Complex(0,1)*y,5))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yx[counter] =
 (15*Sqrt(77/Pi)*Power(x - Complex(0,1)*y,4)*(Complex(0,1)*x*y + Power(y,2) +
   Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

Yy[counter] = (Complex(0,-0.46875)*Sqrt(77/Pi)*Power(x - Complex(0,1)*y,4)*(Power(x,2) -
   Complex(0,1)*x*y + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),3.5);

Yz[counter] = (-15*Sqrt(77/Pi)*Power(x -
   Complex(0,1)*y,5)*z)/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

counter++;

Y[counter] = (3*Sqrt(385/(2.*Pi))*Power(x -
   Complex(0,1)*y,4)*z)/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));
```

```
Yx[counter] =
 (-3*Sqrt(385/(2.*Pi))*Power(x - Complex(0,1)*y,3)*z*(Power(x,2) - Complex(0,5)*x*y -
   4*(Power(y,2) + Power(z,2))))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

Yy[counter] =
 (Complex(0,-0.1875)*Sqrt(385/(2.*Pi))*Power(x - Complex(0,1)*y,3)*z*(4*Power(x,2)
   - Complex(0,5)*x*y - Power(y,2) + 4*Power(z,2)))/Power(Power(x,2)
   + Power(y,2) + Power(z,2),3.5);

Yz[counter] =
 (3*Sqrt(385/(2.*Pi))*Power(x - Complex(0,1)*y,4)*(Power(x,2) + Power(y,2) -
   4*Power(z,2)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

counter++;

Y[counter] = -(Sqrt(385/Pi)*Power(x - Complex(0,1)*y,3)*(Power(x,2) + Power(y,2)
   - 8*Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yx[counter] = (3*Sqrt(385/Pi)*Power(x -
   Complex(0,1)*y,2)*(Power(x - Complex(0,1)*y,2)*y*(Complex(0,-1)*x
   + y) - 7*Power(x - Complex(0,1)*y,2)*Power(z,2) +
   8*Power(z,4)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

Yy[counter] = (Complex(0,0.09375)*Sqrt(385/Pi)*Power(x - Complex(0,1)*y,2)*(x*Power(x -
   Complex(0,1)*y,2)*(x + Complex(0,1)*y) - 7*Power(x - Complex(0,1)*y,2)*Power(z,2)
   - 8*Power(z,4)))/Power(Power(x,2) + Power(y,2) + Power(z,2),3.5);

Yz[counter] =
 (3*Sqrt(385/Pi)*Power(x - Complex(0,1)*y,3)*z*(7*(Power(x,2) + Power(y,2)) -
   8*Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

counter++;

Y[counter] =
 -(Sqrt(1155/(2.*Pi))*Power(x - Complex(0,1)*y,2)*z*(Power(x,2) + Power(y,2) -
   2*Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yx[counter] =
 (Sqrt(1155/(2.*Pi))*(x - Complex(0,1)*y)*z*(Power(x - Complex(0,1)*y,2)*(x +
   Complex(0,1)*y)*(x - Complex(0,2)*y) + 2*(-5*Power(x,2)
   + Complex(0,6)*x*y + Power(y,2))*Power(z,2) +
   4*Power(z,4)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

Yy[counter] =
 (Sqrt(1155/(2.*Pi))*(Complex(0,1)*x + y)*z*(Power(x - Complex(0,1)*y,2)*(2*Power(x,2)
   + Complex(0,1)*x*y + Power(y,2)) - 2*(x -
   Complex(0,1)*y)*(x - Complex(0,5)*y)*Power(z,2) -
   4*Power(z,4)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

Yz[counter] =
 -(Sqrt(1155/(2.*Pi))*Power(x - Complex(0,1)*y,2)*(Power(Power(x,2) + Power(y,2),2)
   - 10*(Power(x,2) + Power(y,2))*Power(z,2) +
   4*Power(z,4)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

counter++;
```

```
Y[counter] = (Sqrt(165/(2.*Pi))*(x - Complex(0,1)*y)*(Power(Power(x,2)
    + Power(y,2),2) - 12*(Power(x,2) + Power(y,2))*Power(z,2) +
    8*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yx[counter] =
 (Sqrt(165/(2.*Pi))*(-(Power(x + Complex(0,1)*y,2)*y*Power(Complex(0,1)*x + y,3))
    + Power(x - Complex(0,1)*y,2)*(x + Complex(0,1)*y)*(29*x
    - Complex(0,11)*y)*Power(z,2) - 4*(x -
    Complex(0,1)*y)*(17*x + Complex(0,1)*y)*Power(z,4) +
    8*Power(z,6)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

Yy[counter] =
 (Complex(0,-0.0625)*Sqrt(165/(2.*Pi))*(x*Power(x - Complex(0,1)*y,3)*Power(x
    + Complex(0,1)*y,2) - Power(x - Complex(0,1)*y,2)*(x +
    Complex(0,1)*y)*(11*x - Complex(0,29)*y)*Power(z,2) -
    4*(x - Complex(0,1)*y)*(x + Complex(0,17)*y)*Power(z,4) +
    8*Power(z,6)))/Power(Power(x,2) + Power(y,2) + Power(z,2),3.5);

Yz[counter] =
 -(Sqrt(165/(2.*Pi))*(x - Complex(0,1)*y)*z*(29*Power(Power(x,2) + Power(y,2),2)
    - 68*(Power(x,2) + Power(y,2))*Power(z,2) +
    8*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

counter++;

Y[counter] = (Sqrt(11/Pi)*z*(15*Power(Power(x,2)
    + Power(y,2),2) - 40*(Power(x,2) + Power(y,2))*Power(z,2) +
    8*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yx[counter] = (-15*Sqrt(11/Pi)*x*z*(Power(Power(x,2)
    + Power(y,2),2) - 12*(Power(x,2) + Power(y,2))*Power(z,2) +
    8*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

Yy[counter] = (-15*Sqrt(11/Pi)*y*z*(Power(Power(x,2)
    + Power(y,2),2) - 12*(Power(x,2) + Power(y,2))*Power(z,2) +
    8*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

Yz[counter] =
 (15*Sqrt(11/Pi)*(Power(x,2) + Power(y,2))*(Power(Power(x,2) + Power(y,2),2)
    - 12*(Power(x,2) + Power(y,2))*Power(z,2) +
    8*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

counter++;

Y[counter] =
 -(Sqrt(165/(2.*Pi))*(x + Complex(0,1)*y)*(Power(Power(x,2) + Power(y,2),2) -
    12*(Power(x,2) + Power(y,2))*Power(z,2) +
    8*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yx[counter] = (Sqrt(165/(2.*Pi))*(Complex(0,1)*Power(x -
    Complex(0,1)*y,2)*Power(x + Complex(0,1)*y,3)*y - (x - Complex(0,1)*y)*Power(x
    + Complex(0,1)*y,2)*(29*x + Complex(0,11)*y)*Power(z,2) +
    4*(17*Power(x,2) + Complex(0,16)*x*y + Power(y,2))*Power(z,4) -
    8*Power(z,6)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));
```

```
Yy[counter] =
 (Complex(0,-0.0625)*Sqrt(165/(2.*Pi))*(x*Power(x - Complex(0,1)*y,2)*Power(x
   + Complex(0,1)*y,3) - (x - Complex(0,1)*y)*Power(x +
   Complex(0,1)*y,2)*(11*x + Complex(0,29)*y)*Power(z,2) -
   4*(x + Complex(0,1)*y)*(x - Complex(0,17)*y)*Power(z,4) +
   8*Power(z,6)))/Power(Power(x,2) + Power(y,2) + Power(z,2),3.5);

Yz[counter] =
 (Sqrt(165/(2.*Pi))*(x + Complex(0,1)*y)*z*(29*Power(Power(x,2) + Power(y,2),2)
   - 68*(Power(x,2) + Power(y,2))*Power(z,2) +
   8*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

counter++;

Y[counter] =
 -(Sqrt(1155/(2.*Pi))*Power(x + Complex(0,1)*y,2)*z*(Power(x,2) + Power(y,2) -
   2*Power(z,2)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yx[counter] = (Sqrt(1155/(2.*Pi))*(x + Complex(0,1)*y)*z*((x
   - Complex(0,1)*y)*Power(x + Complex(0,1)*y,2)*(x + Complex(0,2)*y)
   - 2*(x + Complex(0,1)*y)*(5*x + Complex(0,1)*y)*Power(z,2) +
   4*Power(z,4)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

Yy[counter] =
 (Sqrt(1155/(2.*Pi))*(Complex(0,-1)*x + y)*z*(Power(x + Complex(0,1)*y,2)*(2*Power(x,2)
   - Complex(0,1)*x*y + Power(y,2)) - 2*(x +
   Complex(0,1)*y)*(x + Complex(0,5)*y)*Power(z,2) -
   4*Power(z,4)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

Yz[counter] =
 -(Sqrt(1155/(2.*Pi))*Power(x + Complex(0,1)*y,2)*(Power(Power(x,2) + Power(y,2),2)
   - 10*(Power(x,2) + Power(y,2))*Power(z,2) +
   4*Power(z,4)))/(8.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

counter++;

Y[counter] = (Sqrt(385/Pi)*Power(x + Complex(0,1)*y,3)*(Power(x,2) + Power(y,2)
   - 8*Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yx[counter] =
 (3*Sqrt(385/Pi)*Power(x + Complex(0,1)*y,2)*(Complex(0,-1)*(x - Complex(0,1)*y)*Power(x
   + Complex(0,1)*y,2)*y + 7*Power(x + Complex(0,1)*y,2)*Power(z,2) -
   8*Power(z,4)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

Yy[counter] = (Complex(0,0.09375)*Sqrt(385/Pi)*Power(x
   + Complex(0,1)*y,2)*(x*(x - Complex(0,1)*y)*Power(x +
   Complex(0,1)*y,2) - 7*Power(x + Complex(0,1)*y,2)*Power(z,2) -
   8*Power(z,4)))/Power(Power(x,2) + Power(y,2) + Power(z,2),3.5);

Yz[counter] =
 (-3*Sqrt(385/Pi)*Power(x + Complex(0,1)*y,3)*z*(7*(Power(x,2) + Power(y,2))
   - 8*Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

counter++;
```

```
Y[counter] = (3*Sqrt(385/(2.*Pi))*Power(x +
    Complex(0,1)*y,4)*z)/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yx[counter] =
 (-3*Sqrt(385/(2.*Pi))*Power(x + Complex(0,1)*y,3)*z*(Power(x,2) + Complex(0,5)*x*y -
    4*(Power(y,2) + Power(z,2))))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

Yy[counter] =
 (Complex(0,0.1875)*Sqrt(385/(2.*Pi))*Power(x + Complex(0,1)*y,3)*z*(4*Power(x,2)
    + Complex(0,5)*x*y - Power(y,2) + 4*Power(z,2)))/Power(Power(x,2)
    + Power(y,2) + Power(z,2),3.5);

Yz[counter] =
 (3*Sqrt(385/(2.*Pi))*Power(x + Complex(0,1)*y,4)*(Power(x,2) + Power(y,2) -
    4*Power(z,2)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

counter++;

Y[counter] = (-3*Sqrt(77/Pi)*Power(x +
    Complex(0,1)*y,5))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),2.5));

Yx[counter] = (Complex(0,0.46875)*Sqrt(77/Pi)*Power(x
    + Complex(0,1)*y,4)*(x*y + Complex(0,1)*(Power(y,2) +
    Power(z,2))))/Power(Power(x,2) + Power(y,2) + Power(z,2),3.5);

Yy[counter] = (Complex(0,-0.46875)*Sqrt(77/Pi)*Power(x + Complex(0,1)*y,4)*(Power(x,2) +
    Complex(0,1)*x*y + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),3.5);

Yz[counter] = (15*Sqrt(77/Pi)*Power(x +
    Complex(0,1)*y,5)*z)/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3.5));

counter++;

if (l == 5) return;

Y[counter] = (Sqrt(3003/Pi)*Power(x -
    Complex(0,1)*y,6))/(64.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yx[counter] =
 (3*Sqrt(3003/Pi)*Power(x - Complex(0,1)*y,5)*(Complex(0,1)*x*y + Power(y,2)
    + Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yy[counter] =
 (Complex(0,-0.09375)*Sqrt(3003/Pi)*Power(x - Complex(0,1)*y,5)*(Power(x,2) -
    Complex(0,1)*x*y + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),4);

Yz[counter] = (-3*Sqrt(3003/Pi)*Power(x -
    Complex(0,1)*y,6)*z)/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

Y[counter] = (3*Sqrt(1001/Pi)*Power(x -
    Complex(0,1)*y,5)*z)/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yx[counter] =
 (-3*Sqrt(1001/Pi)*Power(x - Complex(0,1)*y,4)*z*(Power(x,2) - Complex(0,6)*x*y -
    5*(Power(y,2) + Power(z,2))))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));
```

```
Yy[counter] =
 (Complex(0,-0.09375)*Sqrt(1001/Pi)*Power(x - Complex(0,1)*y,4)*z*(5*Power(x,2)
   - Complex(0,6)*x*y - Power(y,2) + 5*Power(z,2)))/Power(Power(x,2)
   + Power(y,2) + Power(z,2),4);

Yz[counter] = (3*Sqrt(1001/Pi)*Power(x - Complex(0,1)*y,5)*(Power(x,2) + Power(y,2)
   - 5*Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

Y[counter] = (-3*Sqrt(91/(2.*Pi))*Power(x - Complex(0,1)*y,4)*(Power(x,2) + Power(y,2)
   - 10*Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yx[counter] = (3*Sqrt(91/(2.*Pi))*Power(x -
   Complex(0,1)*y,3)*(2*Power(x - Complex(0,1)*y,2)*y*(Complex(0,-1)*x +
   y) + (-13*Power(x,2) + Complex(0,31)*x*y + 18*Power(y,2))*Power(z,2)
   + 20*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yy[counter] =
 (-3*Sqrt(91/(2.*Pi))*Power(Complex(0,1)*x + y,3)*(2*x*Power(x - Complex(0,1)*y,2)*(x +
   Complex(0,1)*y) + (-18*Power(x,2) + Complex(0,31)*x*y + 13*Power(y,2))*Power(z,2)
   - 20*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yz[counter] =
 (3*Sqrt(91/(2.*Pi))*Power(x - Complex(0,1)*y,4)*z*(13*(Power(x,2) + Power(y,2))
   - 20*Power(z,2)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

Y[counter] =
 -(Sqrt(1365/Pi)*Power(x - Complex(0,1)*y,3)*z*(3*(Power(x,2) + Power(y,2)) -
   8*Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yx[counter] =
 (3*Sqrt(1365/Pi)*Power(x - Complex(0,1)*y,2)*z*(Power(x - Complex(0,1)*y,2)*(x
   + Complex(0,1)*y)*(x - Complex(0,3)*y) + (-13*Power(x,2)
   + Complex(0,18)*x*y + 5*Power(y,2))*Power(z,2) +
   8*Power(z,4)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yy[counter] = (Complex(0,0.09375)*Sqrt(1365/Pi)*Power(x - Complex(0,1)*y,2)*z*(Power(x
   - Complex(0,1)*y,2)*(3*Power(x,2) + Complex(0,2)*x*y + Power(y,2))
   + (-5*Power(x,2) + Complex(0,18)*x*y + 13*Power(y,2))*Power(z,2)
   - 8*Power(z,4)))/Power(Power(x,2) + Power(y,2) + Power(z,2),4);

Yz[counter] =
 (-3*Sqrt(1365/Pi)*Power(x - Complex(0,1)*y,3)*(Power(Power(x,2) + Power(y,2),2)
   - 13*(Power(x,2) + Power(y,2))*Power(z,2) +
   8*Power(z,4)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

Y[counter] =
 (Sqrt(1365/Pi)*Power(x - Complex(0,1)*y,2)*(Power(Power(x,2) + Power(y,2),2)
   - 16*(Power(x,2) + Power(y,2))*Power(z,2) +
   16*Power(z,4)))/(64.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));
```

```
Yx[counter] = (Sqrt(1365/Pi)*(x - Complex(0,1)*y)*(-(Power(x
    + Complex(0,1)*y,2)*y*Power(Complex(0,1)*x + y,3)) + Power(x
    - Complex(0,1)*y,2)*(19*Power(x,2) + Complex(0,4)*x*y +
    15*Power(y,2))*Power(z,2) - 64*x*(x - Complex(0,1)*y)*Power(z,4) +
    16*Power(z,6)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yy[counter] = (Sqrt(1365/Pi)*(x - Complex(0,1)*y)*(Complex(0,-1)*x*Power(x
    - Complex(0,1)*y,3)*Power(x + Complex(0,1)*y,2) + Power(x
    - Complex(0,1)*y,2)*(x + Complex(0,1)*y)*(Complex(0,15)*x
    + 19*y)*Power(z,2) - 64*(x - Complex(0,1)*y)*y*Power(z,4) -
    Complex(0,16)*Power(z,6)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yz[counter] =
 -(Sqrt(1365/Pi)*Power(x - Complex(0,1)*y,2)*z*(19*Power(Power(x,2) + Power(y,2),2)
    - 64*(Power(x,2) + Power(y,2))*Power(z,2) +
    16*Power(z,4)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

Y[counter] =
 (Sqrt(273/(2.*Pi))*(x - Complex(0,1)*y)*z*(5*Power(Power(x,2) + Power(y,2),2)
    - 20*(Power(x,2) + Power(y,2))*Power(z,2) +
    8*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yx[counter] =
 (Sqrt(273/(2.*Pi))*z*(-5*Power(x - Complex(0,1)*y,4)*Power(x + Complex(0,1)*y,2)
    + 5*Power(x - Complex(0,1)*y,2)*(x + Complex(0,1)*y)*(17*x
    - Complex(0,3)*y)*Power(z,2) - 4*(x -
    Complex(0,1)*y)*(25*x + Complex(0,3)*y)*Power(z,4) +
    8*Power(z,6)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yy[counter] =
 (Complex(0,-0.0625)*Sqrt(273/(2.*Pi))*z*(5*Power(x - Complex(0,1)*y,4)*Power(x
    + Complex(0,1)*y,2) - 5*Power(x - Complex(0,1)*y,2)*(x +
    Complex(0,1)*y)*(3*x - Complex(0,17)*y)*Power(z,2) - 4*(x
    - Complex(0,1)*y)*(3*x + Complex(0,25)*y)*Power(z,4) +
    8*Power(z,6)))/Power(Power(x,2) + Power(y,2) + Power(z,2),4);

Yz[counter] =
 (Sqrt(273/(2.*Pi))*(x - Complex(0,1)*y)*(5*Power(Power(x,2) + Power(y,2),3)
    - 85*Power(Power(x,2) + Power(y,2),2)*Power(z,2)
    + 100*(Power(x,2) + Power(y,2))*Power(z,4) -
    8*Power(z,6)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

Y[counter] = (Sqrt(13/Pi)*(-5*Power(Power(x,2) + Power(y,2),3) + 90*Power(Power(x,2)
    + Power(y,2),2)*Power(z,2) - 120*(Power(x,2) + Power(y,2))*Power(z,4)
    + 16*Power(z,6)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yx[counter] =
 (-21*Sqrt(13/Pi)*x*Power(z,2)*(5*Power(Power(x,2) + Power(y,2),2) - 20*(Power(x,2)
    + Power(y,2))*Power(z,2) + 8*Power(z,4)))/(16.*Power(Power(x,2)
    + Power(y,2) + Power(z,2),4));
```

```
Yy[counter] =
 (-21*Sqrt(13/Pi)*y*Power(z,2)*(5*Power(Power(x,2) + Power(y,2),2) - 20*(Power(x,2)
   + Power(y,2))*Power(z,2) + 8*Power(z,4)))/(16.*Power(Power(x,2)
   + Power(y,2) + Power(z,2),4));

Yz[counter] =
 (21*Sqrt(13/Pi)*(Power(x,2) + Power(y,2))*z*(5*Power(Power(x,2) + Power(y,2),2)
   - 20*(Power(x,2) + Power(y,2))*Power(z,2) +
   8*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

Y[counter] =
 -(Sqrt(273/(2.*Pi))*(x + Complex(0,1)*y)*z*(5*Power(Power(x,2) + Power(y,2),2)
   - 20*(Power(x,2) + Power(y,2))*Power(z,2) +
   8*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yx[counter] =
 (Sqrt(273/(2.*Pi))*z*(5*Power(x - Complex(0,1)*y,2)*Power(x + Complex(0,1)*y,4) - 5*(x
   - Complex(0,1)*y)*Power(x + Complex(0,1)*y,2)*(17*x + Complex(0,3)*y)*Power(z,2)
   + 4*(x + Complex(0,1)*y)*(25*x - Complex(0,3)*y)*Power(z,4) -
   8*Power(z,6)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yy[counter] =
 (Complex(0,-0.0625)*Sqrt(273/(2.*Pi))*z*(5*Power(x - Complex(0,1)*y,2)*Power(x
   + Complex(0,1)*y,4) - 5*(x - Complex(0,1)*y)*Power(x +
   Complex(0,1)*y,2)*(3*x + Complex(0,17)*y)*Power(z,2) -
   4*(x + Complex(0,1)*y)*(3*x - Complex(0,25)*y)*Power(z,4) +
   8*Power(z,6)))/Power(Power(x,2) + Power(y,2) + Power(z,2),4);

Yz[counter] =
 -(Sqrt(273/(2.*Pi))*(x + Complex(0,1)*y)*(5*Power(Power(x,2) + Power(y,2),3)
   - 85*Power(Power(x,2) + Power(y,2),2)*Power(z,2)
   + 100*(Power(x,2) + Power(y,2))*Power(z,4) -
   8*Power(z,6)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

Y[counter] =
 (Sqrt(1365/Pi)*Power(x + Complex(0,1)*y,2)*(Power(Power(x,2) + Power(y,2),2)
   - 16*(Power(x,2) + Power(y,2))*Power(z,2) +
   16*Power(z,4)))/(64.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yx[counter] = (Sqrt(1365/Pi)*(x + Complex(0,1)*y)*(Power(Complex(0,1)*x - y,3)*Power(x -
   Complex(0,1)*y,2)*y + (x - Complex(0,1)*y)*Power(x + Complex(0,1)*y,2)*(19*x
   + Complex(0,15)*y)*Power(z,2) - 64*x*(x + Complex(0,1)*y)*Power(z,4)
   + 16*Power(z,6)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yy[counter] =
 (Sqrt(1365/Pi)*(x + Complex(0,1)*y)*(Complex(0,1)*x*Power(x - Complex(0,1)*y,2)*Power(x
   + Complex(0,1)*y,3) + (x - Complex(0,1)*y)*Power(x +
   Complex(0,1)*y,2)*(Complex(0,-15)*x + 19*y)*Power(z,2)
   - 64*(x + Complex(0,1)*y)*y*Power(z,4) +
   Complex(0,16)*Power(z,6)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));
```

```
Yz[counter] =
 -(Sqrt(1365/Pi)*Power(x + Complex(0,1)*y,2)*z*(19*Power(Power(x,2) + Power(y,2),2)
    - 64*(Power(x,2) + Power(y,2))*Power(z,2) +
    16*Power(z,4)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

Y[counter] = (Sqrt(1365/Pi)*Power(x + Complex(0,1)*y,3)*z*(3*(Power(x,2) + Power(y,2))
    - 8*Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yx[counter] =
 (-3*Sqrt(1365/Pi)*Power(x + Complex(0,1)*y,2)*z*((x - Complex(0,1)*y)*Power(x
    + Complex(0,1)*y,2)*(x + Complex(0,3)*y) - (x +
    Complex(0,1)*y)*(13*x + Complex(0,5)*y)*Power(z,2) +
    8*Power(z,4)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yy[counter] = (Complex(0,0.09375)*Sqrt(1365/Pi)*Power(x +
    Complex(0,1)*y,2)*z*(Power(x + Complex(0,1)*y,2)*(3*Power(x,2) - Complex(0,2)*x*y
    + Power(y,2)) - (x + Complex(0,1)*y)*(5*x + Complex(0,13)*y)*Power(z,2)
    - 8*Power(z,4)))/Power(Power(x,2) + Power(y,2) + Power(z,2),4);

Yz[counter] =
 (3*Sqrt(1365/Pi)*Power(x + Complex(0,1)*y,3)*(Power(Power(x,2) + Power(y,2),2)
    - 13*(Power(x,2) + Power(y,2))*Power(z,2) +
    8*Power(z,4)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

Y[counter] = (-3*Sqrt(91/(2.*Pi))*Power(x + Complex(0,1)*y,4)*(Power(x,2) + Power(y,2)
    - 10*Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yx[counter] = (3*Sqrt(91/(2.*Pi))*Power(x +
    Complex(0,1)*y,3)*(2*Power(x + Complex(0,1)*y,2)*y*(Complex(0,1)*x
    + y) - (x + Complex(0,1)*y)*(13*x + Complex(0,18)*y)*Power(z,2) +
    20*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yy[counter] =
 (3*Sqrt(91/(2.*Pi))*Power(Complex(0,1)*x - y,3)*(2*x*(x - Complex(0,1)*y)*Power(x +
    Complex(0,1)*y,2) - (x + Complex(0,1)*y)*(18*x + Complex(0,13)*y)*Power(z,2)
    - 20*Power(z,4)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yz[counter] =
 (3*Sqrt(91/(2.*Pi))*Power(x + Complex(0,1)*y,4)*z*(13*(Power(x,2) + Power(y,2))
    - 20*Power(z,2)))/(16.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

Y[counter] = (-3*Sqrt(1001/Pi)*Power(x +
    Complex(0,1)*y,5)*z)/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yx[counter] =
 (3*Sqrt(1001/Pi)*Power(x + Complex(0,1)*y,4)*z*(Power(x,2) + Complex(0,6)*x*y -
    5*(Power(y,2) + Power(z,2))))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yy[counter] =
 (3*Sqrt(1001/Pi)*Power(x + Complex(0,1)*y,4)*z*((x + Complex(0,1)*y)*(Complex(0,-5)*x +
    y) - Complex(0,5)*Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));
```

```
Yz[counter] = (-3*Sqrt(1001/Pi)*Power(x + Complex(0,1)*y,5)*(Power(x,2) + Power(y,2)
    - 5*Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

Y[counter] = (Sqrt(3003/Pi)*Power(x +
    Complex(0,1)*y,6))/(64.*Power(Power(x,2) + Power(y,2) + Power(z,2),3));

Yx[counter] =
 (3*Sqrt(3003/Pi)*Power(x + Complex(0,1)*y,5)*(Complex(0,-1)*x*y + Power(y,2)
    + Power(z,2)))/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

Yy[counter] =
 (Complex(0,0.09375)*Sqrt(3003/Pi)*Power(x + Complex(0,1)*y,5)*(Power(x,2) +
    Complex(0,1)*x*y + Power(z,2)))/Power(Power(x,2) + Power(y,2) + Power(z,2),4);

Yz[counter] = (-3*Sqrt(3003/Pi)*Power(x +
    Complex(0,1)*y,6)*z)/(32.*Power(Power(x,2) + Power(y,2) + Power(z,2),4));

counter++;

if (l == 6) return;
```