```
% m = 2, k = 20
%
syms x y z k
% ####### ####### ########## # ############ ########### 3 # 4
r3 = sqrt(x^2 + y^2 + z^2)^20;
r4 = sqrt(x^2 + y^2 + z^2 + k^2)^20;
% ######## ########### #######
% r3
r3_x = diff(r3,x);
r3_xx = diff(r3,x,x);
r3_xy = diff(r3,x,y);
% r4
r4_x = diff(r4,x);
r4_xx = diff(r4,x,x);
r4_xy = diff(r4,x,y);


% ####### ########## ##########
% r3
display(r3_x);
display(r3_xx);
display(r3_xy);
% r4
display(r4_x);
display(r4_xx);
display(r4_xy);
```

```
r3_x =

20*x*(x^2 + y^2 + z^2)^9


r3_xx =

20*(x^2 + y^2 + z^2)^9 + 360*x^2*(x^2 + y^2 + z^2)^8


r3_xy =

360*x*y*(x^2 + y^2 + z^2)^8


r4_x =

20*x*(k^2 + x^2 + y^2 + z^2)^9


r4_xx =

20*(k^2 + x^2 + y^2 + z^2)^9 + 360*x^2*(k^2 + x^2 + y^2 + z^2)^8
```

```
r4_xy =

360*x*y*(k^2 + x^2 + y^2 + z^2)^8
```

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