```
f = (x + y)^3 + 3 x + a y + b y + x y^2 / (7 z + c) + 1 + x^3 y^5
```

$$1 + 3\,x + a\,y + b\,y + x^3\,y^5 + (x+y)^3 + \frac{x\,y^2}{c + 7\,z}$$

```
Collect[f, x_^_. y_^_.]
```

$$1 + 3\,x + a\,y + b\,y + x^3\,y^5 + (x+y)^3 + \frac{x\,y^2}{c + 7\,z}$$

```
Collect[f, {x, y}]
```

$$1 + (a+b)\,y + 3\,x^2\,y + y^3 + x^3\left(1 + y^5\right) + x\left(3 + y^2\left(3 + \frac{1}{c + 7\,z}\right)\right)$$

```
MonomialList[f, {x, y}]
```

$$\left\{x^3\,y^5,\ x^3,\ 3\,x^2\,y,\ x\,y^2\left(3 + \frac{1}{c + 7\,z}\right),\ 3\,x,\ y^3,\ (a+b)\,y,\ 1\right\}$$

```
CoefficientRules[f, {x, y}]
```

$$\left\{\{3, 5\} \to 1,\ \{3, 0\} \to 1,\ \{2, 1\} \to 3,\ \{1, 2\} \to 3 + \frac{1}{c + 7\,z},\right.$$
$$\left.\{1, 0\} \to 3,\ \{0, 3\} \to 1,\ \{0, 1\} \to a + b,\ \{0, 0\} \to 1\right\}$$

```
Replace[
 MonomialList[f, {x, y}],
 a_. x^m_. y^n_. :> {a, m, n},
 {1}
]
```

$$\left\{\{1, 3, 5\},\ x^3,\ \{3, 2, 1\},\ \left\{3 + \frac{1}{c + 7\,z},\ 1,\ 2\right\},\ 3\,x,\ y^3,\ (a+b)\,y,\ 1\right\}$$

```
Replace[a_. x^m_. y^n_. :> {a, m, n}] /@ MonomialList[f, {x, y}]
```

$$\left\{\{1, 3, 5\},\ x^3,\ \{3, 2, 1\},\ \left\{3 + \frac{1}{c + 7\,z},\ 1,\ 2\right\},\ 3\,x,\ y^3,\ (a+b)\,y,\ 1\right\}$$

```
Replace[({m_, n_} → c_) :> {c, m, n}] /@ CoefficientRules[f, {x, y}]
```

$$\left\{\{1, 3, 5\},\ \{1, 3, 0\},\ \{3, 2, 1\},\ \left\{3 + \frac{1}{c + 7\,z},\ 1,\ 2\right\},\right.$$
$$\left.\{3, 1, 0\},\ \{1, 0, 3\},\ \{a + b, 0, 1\},\ \{1, 0, 0\}\right\}$$

```
Table[Expand[D[D[e^(α x+β y+z α β), {α, m}], {β, n}] / e^(α x+β y+z α β)],
  {m, 0, 3}, {n, 0, 3}] // MatrixForm
```

$$\begin{pmatrix} 1 & y + z\,\alpha \\ x + z\,\beta & x\,y + z + x\,z\,\alpha + y\,z\,\beta + z^2\,\alpha\,\beta \\ x^2 + 2\,x\,z\,\beta + z^2\,\beta^2 & x^2\,y + 2\,x\,z + x^2\,z\,\alpha + 2\,x\,y\,z\,\beta + 2\,z^2\,\beta + 2\,x\,z^2\,\alpha\,\beta + \\ x^3 + 3\,x^2\,z\,\beta + 3\,x\,z^2\,\beta^2 + z^3\,\beta^3 & x^3\,y + 3\,x^2\,z + x^3\,z\,\alpha + 3\,x^2\,y\,z\,\beta + 6\,x\,z^2\,\beta + 3\,x^2\,z^2\,\alpha\,\beta + 3\,x\,y\,z^2\,\beta^2 + 3\,z \end{pmatrix}$$