```
> restart;
> w:=exp(-x)*x^a*(x+z)^b;
```

$$w := e^{-x} x^a (x+z)^b \tag{1}$$

```
> C:=1;G:=1;F:=0;K:=-E;J:=E*a+E*b-C+3*E;H:=-E*b*z+C*a+C*b-B+2*C;B:=
  (-E*b*z^2+C*b*z+A+G)/(a+b+1);E:=(C*a*b*z^2+C*b*z^2+A*a^2+2*A*a*b+
  A*b^2-A*b*z-G*b*z+A*a+A*b)/(b*z^3*(a+1));A:=0;
```

$$C := 1$$
$$G := 1$$
$$F := 0$$
$$K := -E$$
$$J := E a + E b + 3 E - 1$$
$$H := -E b z - B + a + b + 2$$
$$B := \frac{-E b z^2 + b z + A + 1}{a + b + 1}$$
$$E := \frac{a b z^2 + A a^2 + 2 A a b + A b^2 - A b z + b z^2 + A a + A b - b z}{b z^3 (a+1)}$$
$$A := 0 \tag{2}$$

```
> sigma:=collect(simplify(A+B*x+C*x^2+E*x^3+F*x^4),[x],factor);
  latex(%);
```

$$\sigma := \frac{(a z + z - 1) x^3}{z^2 (a+1)} + x^2 + \frac{x}{a+1}$$

```
{\frac { \left( az+z-1 \right) {x}^{3}}{{z}^{2} \left( a+1
\right) }}+
{x}^{2}+{\frac {x}{a+1}}
```

```
> tau:=collect(simplify(G+H*x+J*x^2+K*x^3),[x,z],factor);latex(%);
```

$$\tau := 1 + \left(-\frac{1}{z} + \frac{1}{(a+1) z^2}\right) x^3 + \left(-1 + \frac{a+b+3}{z} - \frac{a+b+3}{(a+1) z^2}\right) x^2 + \left(\frac{a^2 + 3 a + 1}{a+1}\right)$$

$$+ \frac{b}{(a+1) z}\bigg) x$$

```
1+ \left( -{z}^{-1}+{\frac {1}{{z}^{2} \left( a+1 \right) }}
\right) {
x}^{3}+ \left( -1+{\frac {a+b+3}{z}}-{\frac {a+b+3}{{z}^{2}
\left( a+1
 \right) }} \right) {x}^{2}+ \left( {\frac {{a}^{2}+3\,a+1}{a+1}
}+{
\frac {b}{z \left( a+1 \right) }} \right) x
```

```
> diff(sigma*w,x)-tau*w:
> collect(factor(expand(%)),[x],factor);
```

$$0 \tag{3}$$