```
> restart;
> w:=exp(-z/x)*x^a*(1-x)^b;
```

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

```
> E:=1;F:=1;K:=F*a+F*b+4*F;J:=E*a+E*b+F*b+F*z+3*E;H:=C*a+C*b+E*b+E*
  z+F*b+2*C;B:=-(C*b+C*z+E*b+F*b-G)/(a+b+1);G:=-(A*a^2+2*A*a*b+A*
  b^2+C*a*b-2*C*b*z-C*z^2+E*a*b-E*b*z+F*a*b-F*b*z+A*a+A*b+C*b+E*b+
  F*b)/(b+z);A:=b*z*(C+E+F)/(a*b-2*b*z-z^2);C:=-E-F;
```

$$E := 1$$

$$F := 1$$

$$K := a+b+4$$

$$J := a+2b+z+3$$

$$H := Ca+Cb+2C+2b+z$$

$$B := -\frac{Cb+Cz-G+2b}{a+b+1}$$

$$G := -\frac{Aa^2+2Aab+Ab^2+Cab-2Cbz-Cz^2+Aa+Ab+Cb+2ab-2bz+2b}{b+z}$$

$$A := \frac{bz(C+2)}{ab-2bz-z^2}$$

$$C := -2 \tag{2}$$

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

$$\sigma := x^4+x^3-2x^2$$

```
{x}^{4}+{x}^{3}-2\,{x}^{2}
```

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

$$\tau := (a+b+4)x^3+(a+2b+z+3)x^2+(-2a+z-4)x-2z$$

```
 \left( a+b+4 \right) {x}^{3}+ \left( a+2\,b+z+3 \right) {x}^{2}
+
 \left( -2\,a+z-4 \right) x-2\,z
```

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

$$0 \tag{3}$$