```
> alias(D=DD):
> f := ((4-x)*ln(x)-3*x)/(x*ln(x)^2-x^2*ln(x)): Int(f,x);
```

$$\int \frac{(4-x)\ln(x)-3\,x}{x\,\ln(x)^2 - x^2\,\ln(x)}\,dx$$

```
> C := (4/x-1)*ln(x)-3; D := ln(x)^2-x*ln(x);
```

$$C := \left(4\,\frac{1}{x}-1\right)\ln(x)-3$$

$$D := \ln(x)^2 - x\,\ln(x)$$

```
> Int( subs(ln(x)=theta,C/D), x ), theta=ln(x);
```

$$\int \frac{\left(4\,\dfrac{1}{x}-1\right)\theta - 3}{\theta^2 - x\,\theta}\,dx,\ \theta = \ln(x)$$

```
> TR := subs(ln(x)=theta, 'resultant'(C - z*diff(D,x),D,theta));
```

$$TR := \mathrm{resultant}\left(\left(4\,\frac{1}{x}-1\right)\theta - 3 - z\left(2\,\frac{\theta}{x}-\theta-1\right),\ \theta^2 - x\,\theta,\ \theta\right)$$

```
> factor(TR);
```

$$(-3+z)(-1+z)(-1+x)$$

```
> c[1] := 3:
  v[1] := subs(ln(x)=theta,'gcdex'(C-c[1]*diff(D,x),D,theta));
  'c[1]' = c[1], 'v[1]' = v[1];
```

$$v_1 := \mathrm{gcdex}\left(\left(4\,\frac{1}{x}-1\right)\theta - 6\,\frac{\theta}{x} + 3\,\theta,\ \theta^2 - x\,\theta,\ \theta\right)$$

$$c_1 = 3,\ v_1 = \theta$$

```
> c[2] := 1:
  v[2] := subs(ln(x)=theta,'gcdex'(C-c[2]*diff(D,x),D,theta));
  'c[2]' = c[2], 'v[2]' = v[2];
```

$$v_2 := \mathrm{gcdex}\left(\left(4\,\frac{1}{x}-1\right)\theta - 2 - 2\,\frac{\theta}{x} + \theta,\ \theta^2 - x\,\theta,\ \theta\right)$$

$$c_2 = 1,\ v_2 = \theta - x$$

```
> Int(C/D,x) = c[1]*log(v[1])+c[2]*log(v[2]), theta=ln(x);
```

$$\int \frac{\left(4\,\dfrac{1}{x}-1\right)\ln(x)-3}{\ln(x)^2 - x\,\ln(x)}\,dx = 3\,\ln(\theta) + \ln(\theta - x),\ \theta = \ln(x)$$