```
> restart : with(VectorCalculus) : with(LinearAlgebra) :
> j := Jacobian([a·r·cos(theta), b·r·sin(theta)], [r, theta])
```

$$j := \begin{bmatrix} a\cos(\theta) & -a\,r\sin(\theta) \\ b\sin(\theta) & b\,r\cos(\theta) \end{bmatrix} \quad (1)$$

```
> j := Determinant(j)
```

$$j := a\cos(\theta)^2 b\,r + a\,r\sin(\theta)^2 b \quad (2)$$

```
> simplify(j)
```

$$a\,b\,r \quad (3)$$

```
> int(int(a·b·r, r = 0..1), theta = 0..2·Pi)
```

$$a\,b\,\pi \quad (4)$$

```
>
```