```
> restart : with(LinearAlgebra) :
>
> M := Matrix([[cos(theta), -sin(theta)], [sin(theta), cos(theta)]])
```

$$M := \begin{bmatrix} \cos(\theta) & -\sin(\theta) \\ \sin(\theta) & \cos(\theta) \end{bmatrix} \tag{1}$$

```
> inv := MatrixInverse(M)
```

$$inv := \begin{bmatrix} \dfrac{\cos(\theta)}{\cos(\theta)^2 + \sin(\theta)^2} & \dfrac{\sin(\theta)}{\cos(\theta)^2 + \sin(\theta)^2} \\ -\dfrac{\sin(\theta)}{\cos(\theta)^2 + \sin(\theta)^2} & \dfrac{\cos(\theta)}{\cos(\theta)^2 + \sin(\theta)^2} \end{bmatrix} \tag{2}$$

```
> v := Vector([x, y])
```

$$v := \begin{bmatrix} x \\ y \end{bmatrix} \tag{3}$$

```
> inv . v
```

$$\begin{bmatrix} \dfrac{\cos(\theta)\, x}{\cos(\theta)^2 + \sin(\theta)^2} + \dfrac{\sin(\theta)\, y}{\cos(\theta)^2 + \sin(\theta)^2} \\ -\dfrac{\sin(\theta)\, x}{\cos(\theta)^2 + \sin(\theta)^2} + \dfrac{\cos(\theta)\, y}{\cos(\theta)^2 + \sin(\theta)^2} \end{bmatrix} \tag{4}$$

```
>
```