```
> restart : with(LinearAlgebra) : with(plots) : with(plottools) : assume(k,
      'integer') :
> e1 := Vector([1, 0, 0]) :
> e2 := Vector([0, 1, 0]) :
> A := 1/2 · (e1 • Transpose(e1) + e2 • Transpose(e2) + e1 • Transpose(e2) + e2
      • Transpose(e1))
```

$$A := \begin{bmatrix} \frac{1}{2} & \frac{1}{2} & 0 \\ \frac{1}{2} & \frac{1}{2} & 0 \\ 0 & 0 & 0 \end{bmatrix} \tag{1}$$

```
> # Do the checks
> A^2 :
> Transpose(A) :
> #` Find jordan formula`
> J, Q := JordanForm(A, output = ['J', 'Q'])
```

$$J, Q := \begin{bmatrix} 0 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 0 \end{bmatrix}, \begin{bmatrix} \frac{1}{2} & \frac{1}{2} & 0 \\ -\frac{1}{2} & \frac{1}{2} & 0 \\ 1 & 0 & 1 \end{bmatrix} \tag{2}$$

```
>
```