```
> restart : with(LinearAlgebra) : with(VectorCalculus) :
> SetCoordinates(cartesian[x, y, z]) :
> v_1 := VectorField([−sin(u), cos(u), 0]) :
> v_2 := VectorField([0, 0, 1]) :
> n_k := CrossProduct(v_1, v_2)
```

$$n\_k := (\cos(u))\bar{e}_x + (\sin(u))\bar{e}_y + (0)\bar{e}_z \quad (1)$$

```
> F := VectorField([y, z, x]) :
> curl := Curl(F)
```

$$curl := (-1)\bar{e}_x + (-1)\bar{e}_y + (-1)\bar{e}_z \quad (2)$$

```
> # dus
> int(int(DotProduct(curl, n_k), v = 0..1 + sin(u)), u = 0..Pi)
```

$$-2 - \frac{\pi}{2} \quad (3)$$

```
>
```