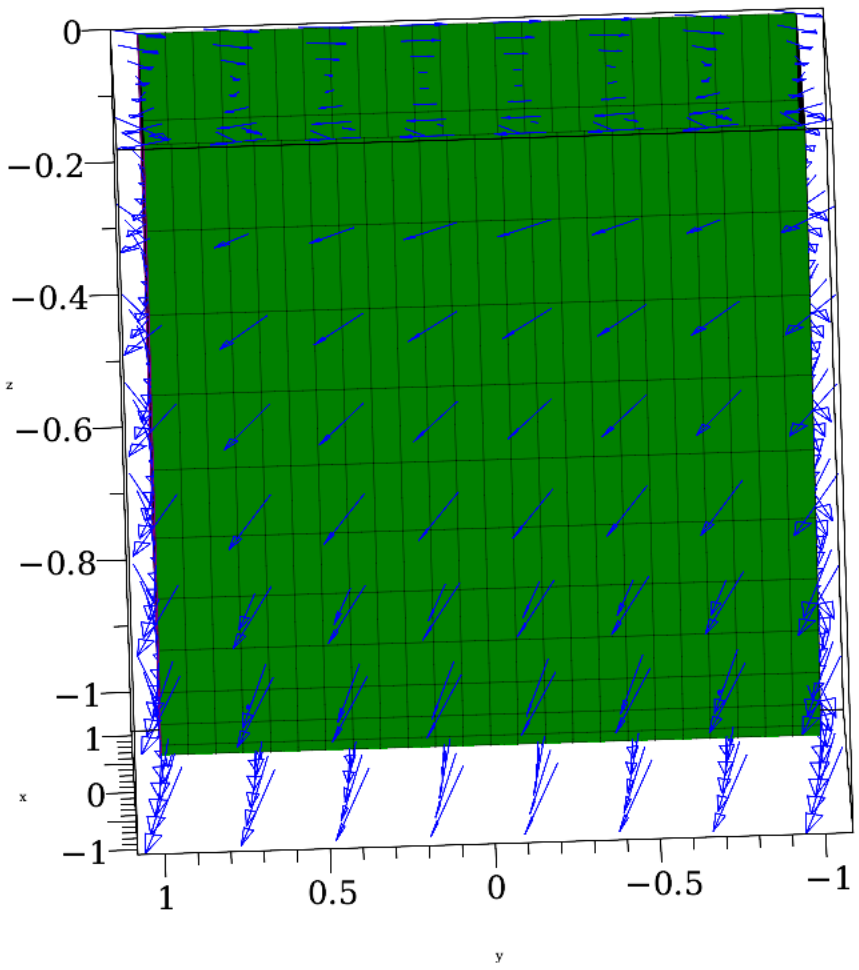
```
> restart: with(LinearAlgebra): with(plots): with(plottools):
      with(VectorCalculus):
> # eerst teken we de cilinder
> cilinder := plot3d([cos(theta), y, sin(theta)], theta = Pi..2·Pi, y = -1..1, color
      = green):
> bottom_cap := plot3d([r·cos(theta), -1, r·sin(theta)], r = 0..1, theta = Pi.. 2
      *Pi, color = "Red", style = patch):
> top_cap := plot3d([r·cos(theta), 1, r·sin(theta)], r = 0..1, theta = Pi..2·Pi, color
      = "Blue", style = patch):
>
> C := spacecurve([cos(theta), 1, sin(theta)], theta = Pi.. 2*Pi, color
      = "Purple"):
>
> vector_field := fieldplot3d([-y^2, -x, z], x = -1 .. 1, y = -1 .. 1, z = -1 .. 0,
      arrows = slim, color = blue, axes = boxed, labels = ["x", "y", "z"], title
      = "Vector Field F(x, y, z)"):

> display([cilinder, bottom_cap, top_cap, C, vector_field], axes = boxed, labels
      = ["x", "y", "z"], title = "Cylinder with Caps and Axes");
```

Cylinder with Caps and Axes




```
> SetCoordinates(cartesian[x, y, z]) :
> F := VectorField([−y^2, −x, z]) :
> curl := Curl(F)
```

$$curl := (0)\bar{e}_x + (0)\bar{e}_y + (-1+2y)\bar{e}_z \qquad (1)$$

```
>
```