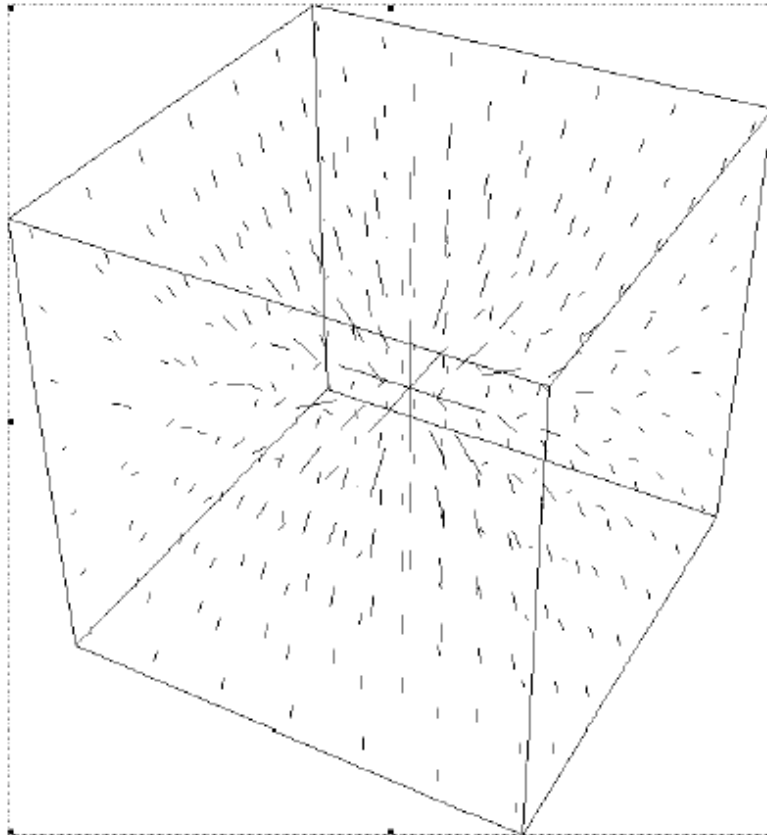


The following shows the gradient of the function $1/r$ in Cartesian coordinates. This is proportional to the electric field of a unit positive point charge.

```
<< Calculus`VectorAnalysis`  
Grad[1/Sqrt[x^2 + y^2 + z^2], Cartesian[x, y, z]]  
{-x/(x^2 + y^2 + z^2)^(3/2), -y/(x^2 + y^2 + z^2)^(3/2), -z/(x^2 + y^2 + z^2)^(3/2)}  
  
<< Graphics`PlotField3D`  
PlotVectorField3D[{-x/(Sqrt[x^2 + y^2 + z^2])^3, -y/(Sqrt[x^2 + y^2 + z^2])^3,  
-z/(Sqrt[x^2 + y^2 + z^2])^3}, {x, -3, 3}, {y, -3, 3}, {z, -3, 3}]
```



A function with a non-zero curl is shown below:

An example of a vector function with a non-zero curl is $\mathbf{A}(x,y) = iy - jx$. A plot of this is given below:

```
in[] = << Calculus`VectorAnalysis`  
      << Graphics`PlotField`  
out[] = PlotVectorField[{-y, x}, {x, 0, 4}, {y, 0, 4}]
```

