

11-08_Curl_And_Div

November 9, 2021

```
[1]: from sympy import *  
     from sympy import vector
```

```
[2]: R = vector.CoordSys3D('R')
```

```
[3]: F = (R.x * R.y)**2 * R.i + 2 * R.x**3 * R.y / 3 * R.j + R.z * R.k
```

```
[4]: F
```

```
[4]:  $(x_R^2 y_R^2) \hat{i}_R + \left(\frac{2x_R^3 y_R}{3}\right) \hat{j}_R + (z_R) \hat{k}_R$ 
```

```
[5]: vector.curl(F)
```

```
[5]:  $\hat{0}$ 
```

```
[7]: vector.divergence(F)
```

```
[7]:  $\frac{2x_R^3}{3} + 2x_R y_R^2 + 1$ 
```

```
[8]: vector.divergence(vector.curl(F))
```

```
[8]: 0
```

```
[ ]:
```