Date of Assignment: 27.01.2025
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Assignment 7

Question

If $F = x^{\log(y)}\hat{i} + y^{\log(x)}\hat{j} + z^{\log(xy)}\hat{k}$, then find div(F) and curl(F)

Code

```
syms x y z;
F = [x.^log(y), y.^log(x), z.^log(x*y)];
disp('Vector Function F = ');
disp(F);
div_F = divergence(F,[x,y,z]);
disp('div(F) at (x,y,z) = ');
disp(div_F);
curl_F = curl(F,[x,y,z]);
disp('curl(F) at (x,y,z) = ')
disp(curl_F);
```

Output

```
>> Assignment_7
Vector Function F =
[x^log(y), y^log(x), z^log(x*y)]

div(F) at (x,y,z) =
z^(log(x*y) - 1)*log(x*y) + y^(log(x) - 1)*log(x) + x^(log(y) -
1)*log(y)

curl(F) at (x,y,z) =
                     (z^log(x*y)*log(z))/y
                    -(z^log(x*y)*log(z))/x
(y^log(x)*log(y))/x - (x^log(y)*log(x))/y

>>
```