Assignment 5

Question

If $f = \left(x^2 + y^2 + z^2\right)^{\frac{3}{2}}$, then find grad(f)

Code

```
1   syms x y z;
2   f = (x.^2 + y.^2 + z.^2).^(3/2);
3   disp('Scalar Function f = ');
4   disp(f);
5   grad_f = gradient(f,[x,y,z]);
6   disp('grad(f) at (x,y,z) = ');
7   disp(grad_f);
```

Output

```
>> Assignment_5
Scalar Function f =
(x^2 + y^2 + z^2)^(3/2)

grad(f) at (x,y,z) =
3*x*(x^2 + y^2 + z^2)^(1/2)
3*y*(x^2 + y^2 + z^2)^(1/2)
3*z*(x^2 + y^2 + z^2)^(1/2)

>>
```