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CIVIL ENGINEERING

ENIG 282

ASSIGNMENT 3

If  $\phi = x^2 y^2 z^3 + xy + z^2$ , write a MATLAB program to determine grad  $\phi$  at the point (1, 3, 2).  
soln.

Command Window

```
clear
```

```
clc
```

```
syms a,b,c; x,y,z; G,i,j,k,H;
```

```
D = (x^2)*y*(z^3) + x*(y^2) + (z^2)
```

```
a = diff(D,x)
```

```
b = diff(D,y)
```

```
c = diff(D,z)
```

```
G = a + b + c
```

```
x = 1
```

```
y = 3
```

```
z = 2
```

```
H = i*(y^2 + z^2 + 2*x*y*z^3) + j*(x^2 + z^3 + 2*y*z) + k*(3*x^2*y*z^2 + x*y^2*z)
```