AGUANIRU ROSEMARY
17/ENG01/003
CHEMICAL ENGINEERING

Write a pgm to find grad ϕ at part (1,3,2) of $\phi = x^2yz^3 + xy^2z^2$

SOLUTION

Command window

```
clear
clc
syms x, y
∅ = x^2*y*z^3 + x*y^2*z^2
g = gradient(∅, [x, y, z])
subs(g, [x, y, z], [1, 3, 2])
```

Output

```
∅ = x^2*y*z^3 + x*y^2*z^2
g = y*z^2*z^2 + 2*x*y*z^3
    x^2*z^3 + 2*y*x*z^2
    3*x^2*y*z^2 + 2*x*y*z
```

81
32
72

$\Rightarrow 81i + 32j + 72k$