If $\phi = x^2yz^3 + xy^2z^2$ determine grad ϕ at the point P(1, 3, 2)

```
commandwindow
clear
cle
close all
syms x
syms y
syms z
k = x^2*y*z^3 + x*y^2*z^2
g = gradient(k, [x, y, z])
subs(g, [x, y, z], [1, 2, 3])
```

Answers.

```
k = x^2*y*z^3 + x*y^2*z^2
g = y^2*z^3*z^2 + 2*x*y*z^3
  = x^2*2*z^3 + 2*y*x*z^2
    3*x^2*z*y*z^2 + 2*x*y^2*z
ans: 84
     32
     72
```