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200 level  
Mechanical Engineering  
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command window

clear

clc

close all

syms x y z i j k

$$\phi = x^2 * y * z^3 + x * y^2 * z^2$$

$$a = \text{diff}(\phi, x)$$

$$b = \text{diff}(\phi, y)$$

$$c = \text{diff}(\phi, z)$$

$$x = 1, y = 3, z = 2$$

$$an = \text{subs}(a)$$

$$bn = \text{subs}(b)$$

$$cn = \text{subs}(c)$$

$$ann = \text{subs}(an) * i$$

$$bnn = \text{subs}(bn) * j$$

$$cnn = \text{subs}(cn) * k$$

$$\text{grad}(\phi) = ann + bnn + cnn$$