

DIOAM LORRETA ZIGWAL

17/ENG06/021

MECHANICAL ENGINEERING

ENG 282

$$Q = x^4 z^6 + x^{1/2} z^2$$

Command Window

clear

clc

Syms x, y, z

$$Q = x^4 * y * z^3 + x^{1/2} * z^2$$

diff(Q, x)

diff(Q, y)

diff(Q, z)

subs C

$$Q = x^4 y z^3 + x^{1/2} z^2$$

$$\frac{dQ}{dx} = 4x^3 y z^3 + \frac{1}{2} x^{-1/2} z^2$$

$$\frac{dQ}{dy} = x^4 z^3$$

$$\frac{dQ}{dz} = 3x^4 y z^2 + x^{1/2} z$$

$$\text{subs}(C, [x y z], [1 1 1])$$

$$Q = 1^4 * 1 * 1^3 + 1^{1/2} * 1^2 = 1 + 1 = 2$$

$$\frac{dQ}{dx} = 4 * 1^3 * 1 * 1^3 + \frac{1}{2} * 1^{-1/2} * 1^2 = 4 + \frac{1}{2} = 4.5$$

$$\frac{dQ}{dy} = 1^4 * 1^3 = 1$$

$$\frac{dQ}{dz} = 3 * 1^4 * 1 * 1^2 + 1^{1/2} * 1 = 3 + 1 = 4$$

$$\text{subs}(C, [x y z], [1 1 1]) = 2$$