

YAKUBU ASSIGNMENT

17/05/2020

COMPUTER ENGINEERING

ASSIGNMENT 3

①

Command window

clear

clc

S yms x, y, z

E = 3x^2 + y^2 + z^2

G = gradient (E, [x, y, z])

subs(G, [x, y, z], [1, 3, 2])

∴ Gradient $\delta = 84i + 32j + 12k$

②

$$r = (ct^2 + 3t)i - 25.123tj + 3e^{2t}k$$

③

$$\frac{dr}{dt} = (2ct + 3)i - 25.123j + 6e^{2t}k$$

④

$$\frac{d^2r}{dt^2} = 2ci + 18.5103tj + 12e^{2t}k$$

at $t=0$

$$\left| \frac{d^2r}{dt^2} \right| = 2ci + 18.5103(0)j + 12e^{2(0)}k$$

$$= 2c + 0 + 12k$$

$$= \sqrt{2^2 + 12^2} = \sqrt{148} = 12.165$$