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**Department: Mechatronics**

**Matric Number: 19/ENG05/042**

**Course Code: MAT 104**

**Course Tittle:**

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1. Limx\_0 x-cos x/x

Diff limx\_0 1-(-sin x)/1

Limx\_0 1+sin x/1

1+sin (0)/1

1. Y= log 3x

Y+ y= cos 3 (x +x)

y +cos (3x + 3x)

y = cos 3x 3100x – sin 3x 3sinx - y

y/x = cos 3x 3100 x/x – sin 2x 3sinx/x – cos 3x/x

y/x = cos 3x 3(cosx)/x = 0 – sin 3x 3sinx/x – sin3x 3(sinx=1)/x - cos3x/x

dy/dx =dy/dx -3sin3x

1. 2(5) ^3 - 7(5) – (-3(5)

=2(125) -7(5) +15

=250-35+15

=230

1. Fog(x) F(x)=4x^2+2 G(x)=2x+3

4x^2 = 4(2x+3)

=4x^2 + 12x + 12x + 9

=4x^2 +24x + 9
=4(4x^2 + 24x + 9)

=16x^2 + 96x + 36

Fog(x)= 16x^2 + 19x + 36

1. Y= x^2 cos x

V=x, v= cos m, m=x

Du/dx =2x, dv/dm= - sin m, dv/dx= 1

dv/dx = dv / d/u \* d/u / dx

Dy/dx= vdu/dx – udv/dx = -sin x

Limx\_0 x-cosx/x