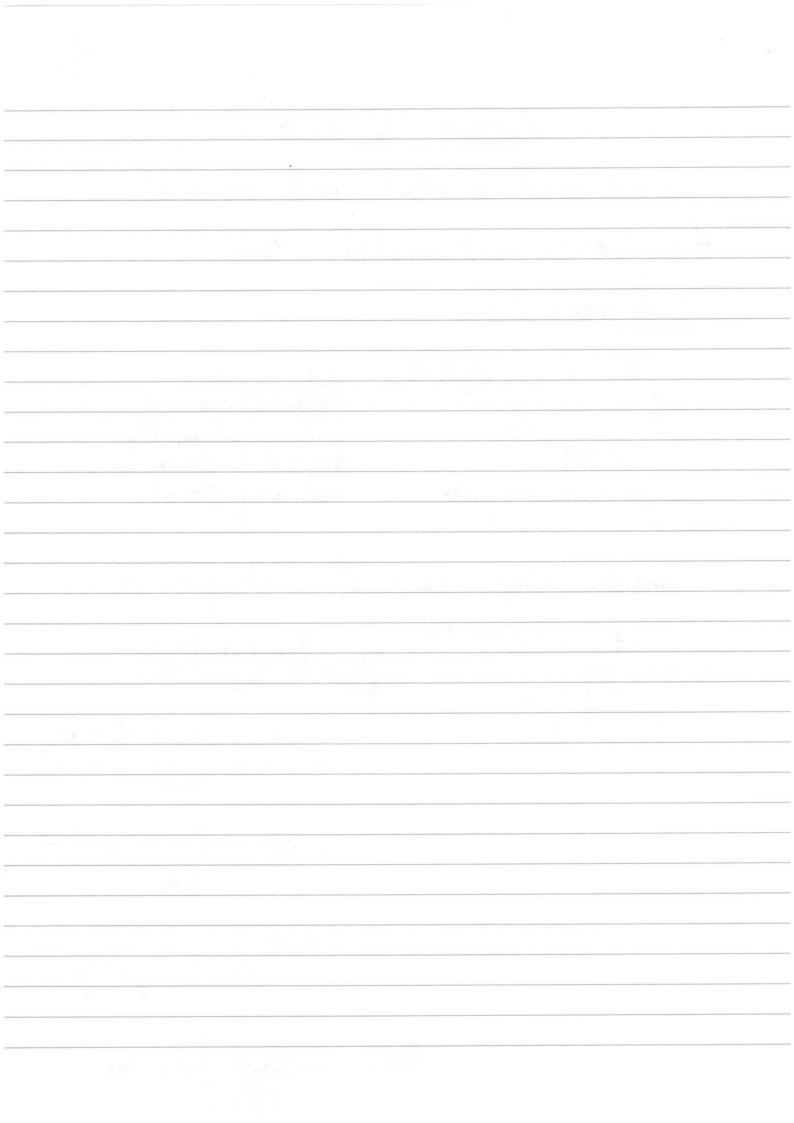
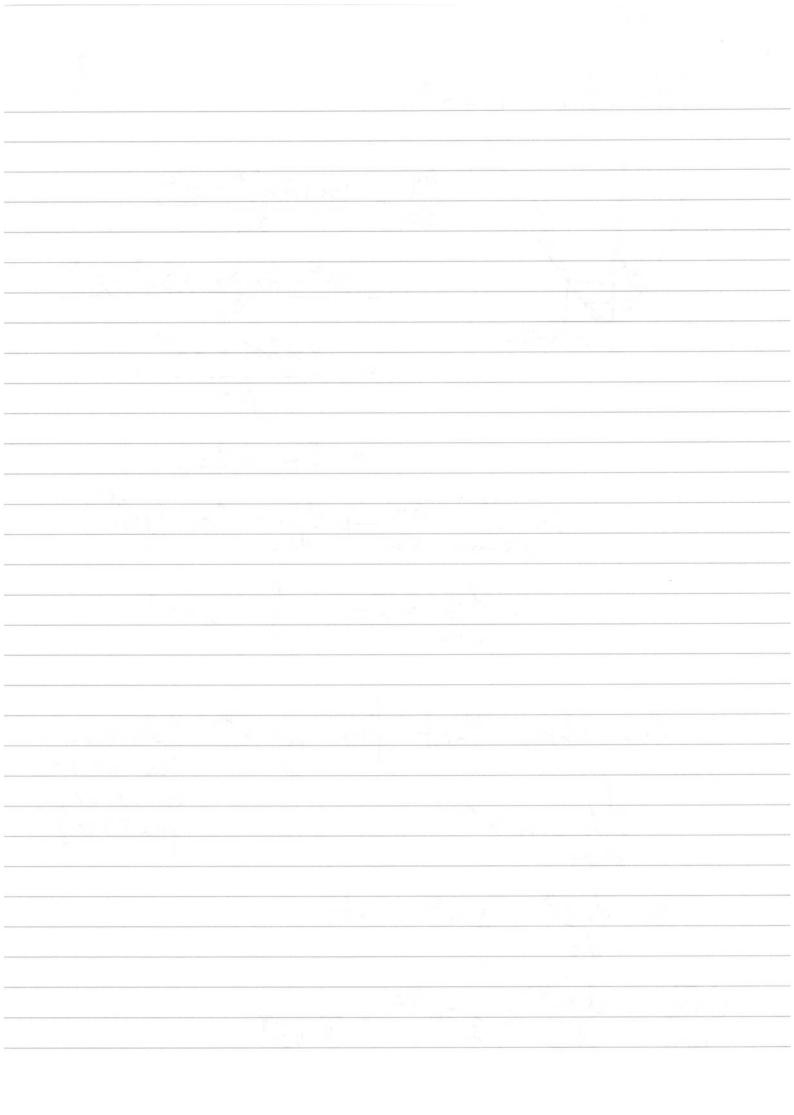
1 1 200
Lecture to GSS.
First need to start with some of
the basic mathematical tools.
Differentiation.
y = f(x) differentiation is inst findings the
y differentiation is
y differentiation is just findings the gradient of a line Dat any point.
gradient of Jahine Jat any point.
>C.
P trillia
Consider simple case of a straight line.
y+sy y = m>c+c 8y = f(>c+s>c) - f(>c) 8>c
y+sy - y - 1 820 820.
$= m(3C+S_{2}C)+C-m_{2}C+C$
Soc
= moc + m gat + to moc-co
= moc + most + moc-cs
= M.
No Surprise

Note constant has no effect.



Lets try y= >c2. $\frac{8y}{8x} = \frac{(x+8x)^2 - xc^2}{8x}$ - 2e2 + 20cSoc + 8x - 2e2. = 20c85C + Socx. 8,06 2C X+52C = 2 sc + Ssc. in 2 89 - D dy = 20c (+82) i. dy = 20c for y=0c2. Can show that for y=xn (where n can be t dy = nocn-1 so d 203 - 3002 etc.

doc doc = 1 2 -1/2 = 1 doc.



$$\frac{d^{3}c}{dsc} = \frac{dsc}{dsc} = -1 = \frac{-2}{2c^{2}} = -\frac{1}{2c^{2}}$$

Other functions

dsinoc. = cosoc.

dcosse. = - sinse.

Also $\frac{d \sin f(x)}{dx} = f'(x) \cos f(x)$ where $\frac{d f(x)}{dx}$

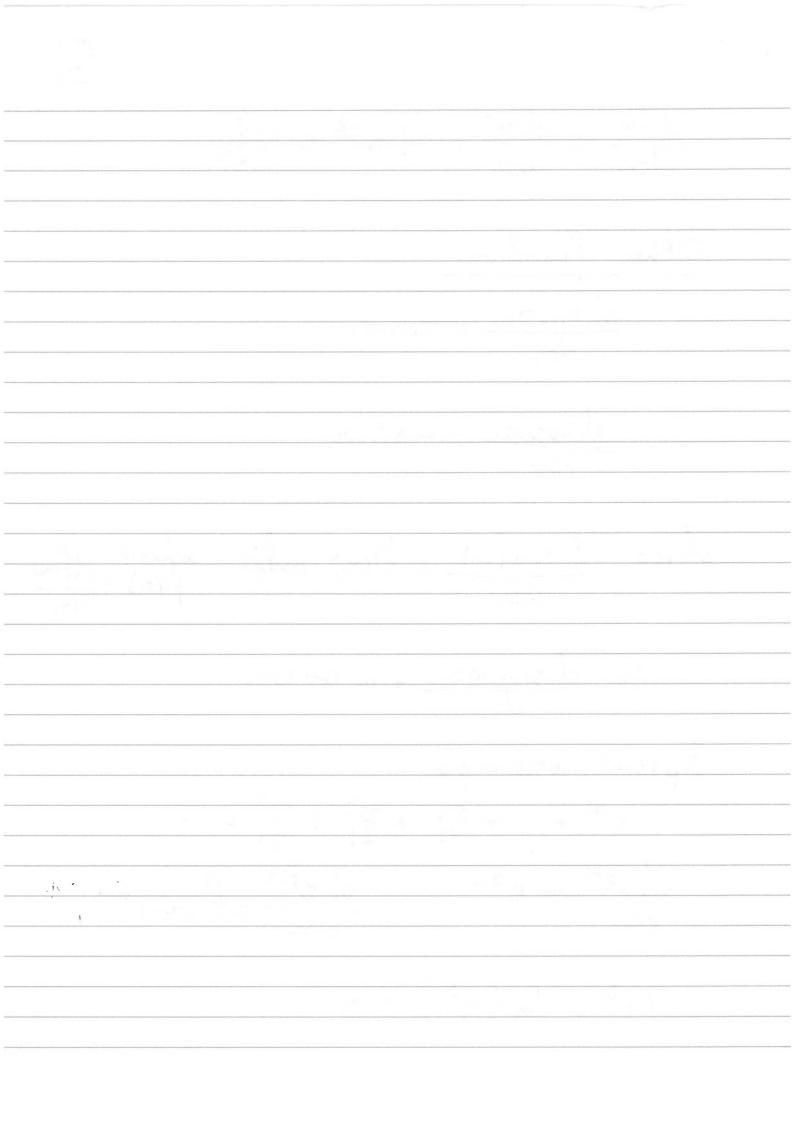
so dsin wor = w cos woc.

Special example.

 $e^{2c} = 1 + \frac{2c}{1!} + \frac{2c^{3}}{2!} + \frac{2c^{3}}{3!} + \cdots$

 $de^{2c} = e^{2c}$. $de^{f(x_c)} = \int_{-\infty}^{\infty} (x_c)e^{2c}$.

Note ln (e°c) = oc





Also de lucou)

Integration

Is the opposite to differentiation

 $\frac{dy}{dx} = f(x)$

Old = If (oc) doc.

Pashioned

y = If (oc) doc.

integral.

Actually a measure of the circle y=f(x) $A=\int_{a}^{b}f(x)dx$ $A=\int_{a}^{b}f(x)dx$

Definite integral.