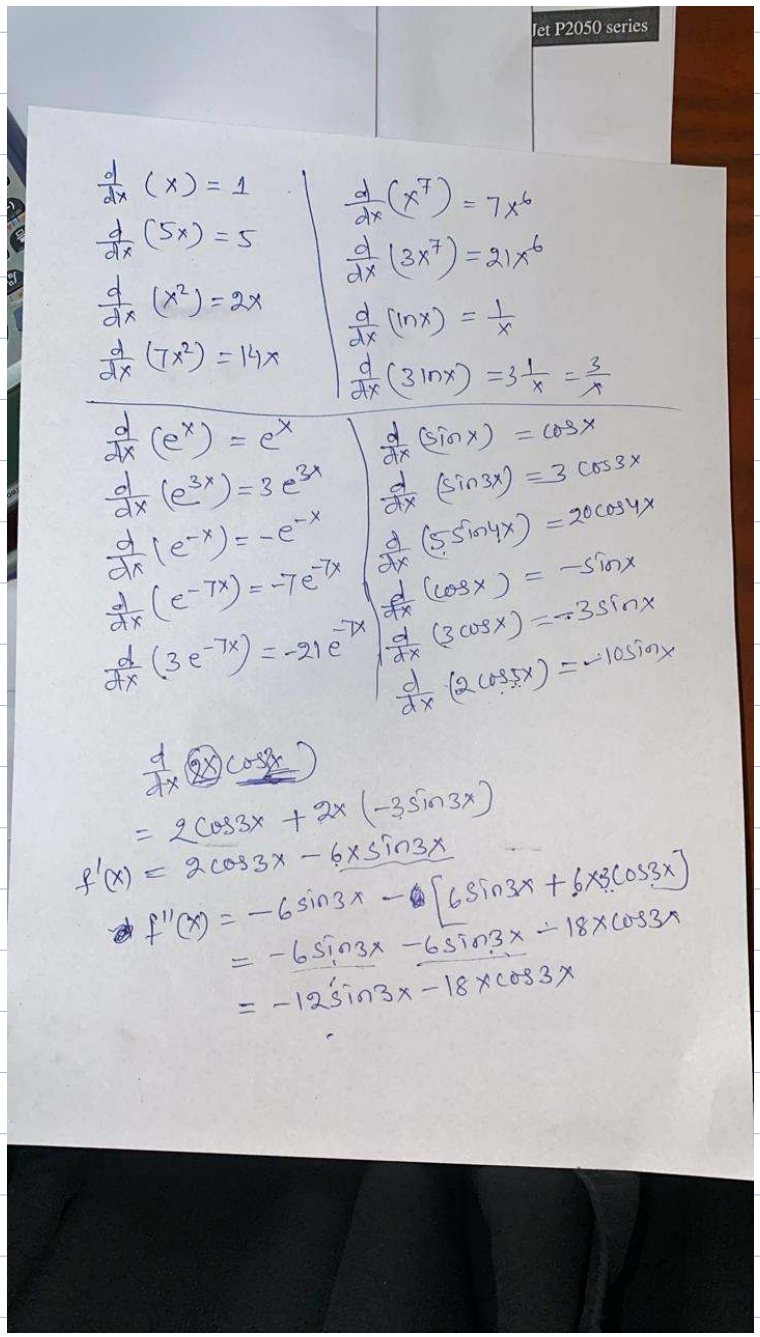
قوانين للفاينل و الميجرز:
Secant method
False position
Modified newton’s
Aitken’s method
Steffson method
Muller’s method حقت الفورملا بتجيب a and b بس ال c تحفظيهم لازم الاساسية الفورملا و

Polynomial of centered
Polynomial of hermite
Cubic spline b will be given
Closed cotes simpson’s 3th/8 and n=4
Open cotes all will be given except the midpoint
4.4 all will be given
5.3 the Tn will be given and the formula

rule
Chain rule
quotient rule

)

Derivative	Integral (Antiderivative)
$\frac{d}{dx} n = 0$	$\int 0 \, dx = C$
$\frac{d}{dx} x = 1$	$\int 1 \, dx = x + C$
$\frac{d}{dx} x^n = nx^{n-1}$	$\int x^n \, dx = \frac{x^{n+1}}{n+1} + C$
$\frac{d}{dx} e^x = e^x$	$\int e^x \, dx = e^x + C$
$\frac{d}{dx} \ln x = \frac{1}{x}$	$\int \frac{1}{x} \, dx = \ln x + C$
$\frac{d}{dx} n^x = n^x \ln x$	$\int n^x \, dx = \frac{n^x}{\ln n} + C$
$\frac{d}{dx} \sin x = \cos x$	$\int \cos x \, dx = \sin x + C$
$\frac{d}{dx} \cos x = -\sin x$	$\int \sin x \, dx = -\cos x + C$
$\frac{d}{dx} \tan x = \sec^2 x$	$\int \sec^2 x \, dx = \tan x + C$
$\frac{d}{dx} \cot x = -\csc^2 x$	$\int \csc^2 x \, dx = -\cot x + C$
$\frac{d}{dx} \sec x = \sec x \tan x$	$\int \tan x \sec x \, dx = \sec x + C$
$\frac{d}{dx} \csc x = -\csc x \cot x$	$\int \cot x \csc x \, dx = -\csc x + C$
$\frac{d}{dx} \arcsin x = \frac{1}{\sqrt{1-x^2}}$	$\int \frac{1}{\sqrt{1-x^2}} \, dx = \arcsin x + C$
$\frac{d}{dx} \arccos x = -\frac{1}{\sqrt{1-x^2}}$	$\int -\frac{1}{\sqrt{1-x^2}} \, dx = \arccos x + C$
$\frac{d}{dx} \arctan x = \frac{1}{1+x^2}$	$\int \frac{1}{1+x^2} \, dx = \arctan x + C$
$\frac{d}{dx} \operatorname{arc\,cot} x = -\frac{1}{1+x^2}$	$\int -\frac{1}{1+x^2} \, dx = \operatorname{arc\,cot} x + C$
$\frac{d}{dx} \operatorname{arc\,sec} x = \frac{1}{x\sqrt{x^2-1}}$	$\int \frac{1}{x\sqrt{x^2-1}} \, dx = \operatorname{arc\,sec} x + C$
$\frac{d}{dx} \operatorname{arc\,csc} x = -\frac{1}{x\sqrt{x^2-1}}$	$\int -\frac{1}{x\sqrt{x^2-1}} \, dx = \operatorname{arc\,csc} x + C$



$\frac{d}{dx}(x) = 1$

$\frac{d}{dx}(5x) = 5$

$\frac{d}{dx}(x^2) = 2x$

$\frac{d}{dx}(7x^2) = 14x$

$\frac{d}{dx}(x^7) = 7x^6$

$\frac{d}{dx}(3x^7) = 21x^6$

$\frac{d}{dx}(\ln x) = \frac{1}{x}$

$\frac{d}{dx}(3\ln x) = 3\frac{1}{x} = \frac{3}{x}$

$\frac{d}{dx}(e^x) = e^x$

$\frac{d}{dx}(e^{3x}) = 3e^{3x}$

$\frac{d}{dx}(e^{-x}) = -e^{-x}$

$\frac{d}{dx}(e^{-7x}) = -7e^{-7x}$

$\frac{d}{dx}(3e^{-7x}) = -21e^{-7x}$

$\frac{d}{dx}(\sin x) = \cos x$

$\frac{d}{dx}(\sin 3x) = 3\cos 3x$

$\frac{d}{dx}(5\sin 4x) = 20\cos 4x$

$\frac{d}{dx}(\cos x) = -\sin x$

$\frac{d}{dx}(3\cos x) = -3\sin x$

$\frac{d}{dx}(2\cos 5x) = -10\sin x$

$\frac{d}{dx}(2x\cos 3x)$

$= 2\cos 3x + 2x(-3\sin 3x)$

$f'(x) = 2\cos 3x - 6x\sin 3x$

$f''(x) = -6\sin 3x - [6\sin 3x + 6x3(\cos 3x)]$

$= -6\sin 3x - 6\sin 3x - 18x\cos 3x$

$= -12\sin 3x - 18x\cos 3x$

Product rule & دالتين بينهم ضرب

$$\frac{d}{dx}[f(x)g(x)] = f(x)g'(x) + f'(x)g(x)$$

Chain rule & دالة داخل دالة

$$\frac{d}{dx}\left[(f(x))^n\right] = n(f(x))^{n-1} \cdot f'(x)$$

$$\frac{d}{dx}[f(g(x))] = f'(g(x))g'(x)$$

Quotient rule & دالة مقسومة على دالة

$$\frac{d}{dx}\left[\frac{f(x)}{g(x)}\right] = \frac{g(x)f'(x) - f(x)g'(x)}{(g(x))^2}$$