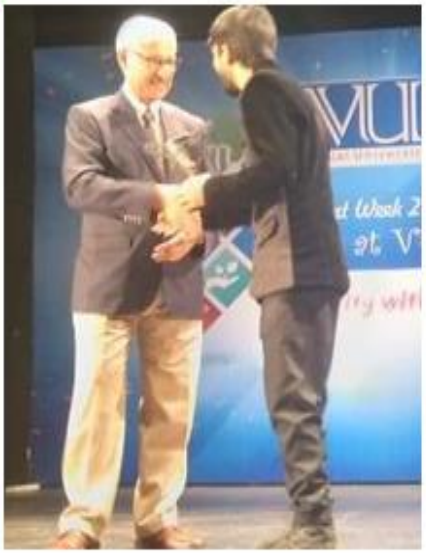
السلام علیکم اللہ ورحمتہ وبرکاتہ

اللہ "وَتُعِزُّ مَن تَشَاءُ وَتُذِلُّ مَن تَشَاءُ

اللہ "جسے چاہے عزت دے اور جسے چاہے ذلیل کرے"

JUST PRAY FOR ME

REGARD : RIZWAN MANZOOR



Mth-101 Important Formulas For Final Term

Solve By Vu_Toper-RM

What's app 03224021365

Paid Tasks = LMS Handling + Online Classes + Project

Remeber that:

$$\int_a^b f(x)\,dx = \lim_{\max \Delta x_k \to 0} \sum_{k=1}^{n} f(x_k^*)\,\Delta x_k$$

Theorem 5.6.5:

$$\int_a^b f(x)\,dx = \int_a^c f(x)\,dx + \int_c^b f(x)\,dx$$

Area between two curves:

$$A = \int_a^b [f(x) - g(x)]\,dx$$

Volume of 3d area.

$$V = A \cdot h$$

Volumes by cross section Perpendicular to x-axis

$$V = \int_a^b A(x)\,d(x)$$

Volumes of cross sections perpendicular to y-axis

$$V = \int_c^d A(y)\,dy$$

length of Plane curve:

$$L = \int_a^b \sqrt{1 + (f'(x))^2}\,dx$$

volume of solid.

$$V = \int_a^b \pi([f(x)]^2 - [g(x)]^2)\,dx.$$

Volume by cylindrical shells.

$$V = \int_a^b 2\pi x f(x)\,dx$$

S/1. Importahit

First Fundamental Theorem:

$$\int_a^b f(x)\,dx = |f(x)|_a^b$$

Second Fundmental theorem:

$$\frac{d}{dx}\left[\int_a^x f(t)\,dt\right] = f(x)$$

Newton's Methad:.

$$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$$

Mean value Theorem.

$$f'(c) = \frac{f(b) - f(a)}{b-a}$$

$$\sum_{k=1}^{n} = \frac{n(n+1)}{2}$$

$$\sum_{k=1}^{n} k^2 = \frac{n(n+1)(2n+1)}{6} \quad \therefore \quad \sum_{k=1}^{n} k^3 = \left[\frac{n(n+1)}{2}\right]^2$$

$$\Delta x = \frac{b-a}{n}$$

To find Area:.

$$A = \lim_{n \to +\infty} \sum_{k=1}^{n} f(x_k^*)\,\Delta x$$

deft end point: $x_k^* = a + (k-1)\,\Delta x$

Right end point: $x_k^* = a + k\,\Delta x$

Mid point $x_k^* = a + \left(k - \frac{1}{2}\right)\Delta x$

L'Hopital's Rule

$$\lim \frac{f(x)}{g(x)} = \lim \frac{f'(x)}{g'(x)}$$

Geometric series Formula:

$$\frac{a}{1-r} = a + ar + ar^2 + \cdots + ar^k + \cdots$$

Ratio Test

$$P = \lim_{k \to \infty} \frac{u_{k+1}}{u_k}$$

Maclaurin Polynomials:

$$P_n(x) = f(0) + f'(0)x + \frac{f''(0)}{2!}x^2 + \frac{f'''(0)}{3!}x^3 + \cdots$$
$$\cdots + \frac{f^{(n)}(0)}{n!}x^n$$

Taylor polynomial

$$P_n(x) = f(a) + f'(a)(x-a) + \frac{f''(a)}{2!}(x-a)^2 + \frac{f'''(a)}{3!}(x-a)^3$$
$$+ \cdots + \frac{f^{(n)}(a)}{n!}(x-a)^n$$

Surface Area Formula:

$$S = \int_a^b 2\pi f(x)\sqrt{1+[f'(x)]^2}\,dx$$

Formula of Work done.

$$W = F \cdot d$$

most common units of work.

* Foot pounds (ft lb)
* dyne centimeters (dyne cm)
* newton-meter (Nm)

One newton meter is also called a joule

units of Force:

* Pounds (lbs)
* Dynes
* Newton (N)

Formula of Work done in MTH.

$$W = \int_a^b F(x)\,dx$$

Formula for Fluid Force.

$$F = \int_a^b ph(x)\,w(x)\,dx$$

Improper integral as a limit.

$$\int_a^b f(x)\,dx = \lim_{t \to b^-} \int_a^t f(x)\,dx$$

$$\int_a^b f(x)\,dx = \lim_{t \to a^+} \int_t^b f(x)\,dx.$$