

MTH341

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1. What is the nth- term of the Maclaurin's infinite series expansion of $\cos x$?

$$\frac{x^{2n}}{n!}$$

$$\frac{x^n}{n!}$$

$$\frac{n!}{2}$$

---> $(-1)^n \frac{x^{2n}}{2n!}$

2. The expression $\frac{(b-a)^n}{n!} f^{(n)}(c)$ is called _____ form of Remainder.

Schlomilch and Roche

Taylor and Lagrange's

Cauchy

---> Lagrange's

3. The expression $\frac{(b-a)^p (b-c)^{n-p}}{p(n-1)!} f^{(n)}(c)$ is called _____ forms of Remainder.

---> Schlomilch and Roche

Taylor and Lagrange's

Cauchy

Lagrange's

4. Let $f : [0, h] \rightarrow \mathbb{R}$ be a function such that _____ exists for every positive integer n and for each $x \in [0, h]$.

$$f^{(0)}(x)$$

---> $f^{(n)}(x)$

$$f^{(n-1)}(x)$$

$$f^{(2)}(x)$$

5. If two functions f and g are (i) continuous in $[a, b]$, (ii) derivable in $]a, b[$ and (iii)

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1

variable

--->> constant

∞

6. The Lagrange's mean value theorem states that the _____ rate of change of a function over an interval is also the actual rate of change of the function at some point of the interval.

--->> average

constant

interval

chord

7. Lagrange's mean value theorem is particular case of _____ if we choose the function g as $g(x) = x$ for all $x \in [a, b]$.

Darboux mean value theorem

--->> Cauchy's mean value theorem

Dirichlet theorem

Intermediate mean value theorem

8. The expression $\frac{(b-a)(b-c)^{n-1}}{(n-1)!} f^{(n)}(c)$ is called _____ forms of Remainder.

Schlomilch and Roche

Taylor and Lagrange's

--->> Cauchy

Lagrange's

9. Obtain $f^{(n)}(x)$ of $f(x) = \log(1+x)$ for $x > -1$.

$\frac{x^2}{n!}$

$\frac{x^{n-1}}{n!}$

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$$\frac{(-1)^n x^{2n}}{(2n)!}$$

10. What is the n th-term of the Maclaurin's infinite series expansion of e^x for all $x \in \mathbb{R}$?

$$\frac{x^2}{n!}$$

$$\rightarrow \frac{x^n}{n!}$$

$$\frac{n!}{2!}$$

$$x^n$$

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