

Department of Mathematics

Assignment of semester 1 session 2022-25 (CBCS Syllabus & NEP)

Differential Calculus Topic –Successive Differentiation

Find the successive differentiation (y_n) of the following questions.

1. $y = \frac{1}{1+x}$

2. $y = \frac{1}{a-x}$

3. $y = \frac{1}{(1+x)^2}$

4. $y = \frac{1}{(1-x)^2}$

5. $y = \frac{1}{(ax+b)^m}$

6. $y = \frac{1}{\sqrt{1+x}}$

7. $y = \sin^2 x$

8. $y = \cos^2 x$

9. $y = \sin^3 x$

10. $y = \cos^3 x$

11. $y = \sin x \cos x$

12. $y = \sin x \cos 2x$

13. $y = \cos x \cos 2x$

14. $y = \sin x \sin 2x$

15. $y = \cos x \sin 2x$

16. $y = \cos x \sin 2x$

17. $y = \sin x \cos^2 x$

18. $y = \cos x \sin^2 x$

19. If $\sqrt{x+y} + \sqrt{y-x} = c$ then prove that $y_2 = \frac{2}{c^2}$.

20. If $y = Ae^{mx} + Be^{-mx}$ then prove that $y_2 = -m^2 y$

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