National Institute of Open Schooling (NIOS)
Senior Secondary Course
Lesson – 26: Differentiation
Worksheet -26

1. Discuss the differentiability of a function at a point with an example.

2. Write the steps for derivative of a function from first principle with an example.

3. Find the derivative of x^3 from the first principle.

4. Describe product of two differentiable functions. For some constants 'a' & 'b' find the derivative of $(x-a)(x-b)$.

5. Find the derivative of $x^n + ax^{n-1} + a^2x^{n-2} + \ldots\ldots\ldots + a^{n-1}x + a^n$ for some real number 'a'.

6. If $y = \sqrt{x} + \frac{1}{\sqrt{x}}$, show that $2x\frac{dy}{dx} + y = 2\sqrt{x}$

7. Describe quotient rule of differentiable functions with an example.

8. Using quotient rule find $\frac{dy}{dx}$, where $y = \frac{x^2 \sin x}{2-x}$, for $x \neq 2$

9. If $y = \frac{\sin x + \cos x}{\sin x - \cos x}$, then find $\frac{dy}{dx}$

10 . Describe chain rule in derivative of functions with an example.