2 Lecture - MTH101

Important Subjective

1. **What is the Absolute Value of -10?**
   Answer: The Absolute Value of -10 is 10.

2. **Define the Absolute Value function.**
   Answer: The Absolute Value function is a function that returns the magnitude or distance of a number from zero on the number line, regardless of its sign. It is denoted by f(x) = |x|.

3. **What is the graph of the Absolute Value function?**
   Answer: The graph of the Absolute Value function is a V-shaped curve with its vertex at the origin.

4. **Is the Absolute Value function continuous for all real numbers?**
   Answer: Yes, the Absolute Value function is continuous for all real numbers.

5. **What is the derivative of the Absolute Value function?**
   Answer: The derivative of the Absolute Value function is a step function, which changes its value abruptly at x = 0. The derivative of the Absolute Value function is given by f'(x) = -1, for x < 0 and f'(x) = 1, for x > 0.

6. **What is the limit of the function f(x) = |x| as x approaches 0?**
   Answer: The limit of the function f(x) as x approaches 0 from the left is -0, and the limit of the function as x approaches 0 from the right is 0. Hence, the limit of the function f(x) as x approaches 0 does not exist.

7. **Is the Absolute Value function differentiable at x = 0?**
   Answer: No, the Absolute Value function is not differentiable at x = 0.

8. **What is the distance between points (3, 4) and (-2, 1)?**
   Answer: The distance between the points (3, 4) and (-2, 1) is given by |3 - (-2)| + |4 - 1| = 5 + 3 = 8.

9. **How can we evaluate the integral ?[0, 2] |x - 1| dx?**
   Answer: We can split the integral into two parts ?[0, 1] (1 - x) dx and ?[1, 2] (x - 1) dx, which gives the value of the integral as 1.

10. **What is the value of |5 – 7| + |10 – 7|?**
    Answer: The value of |5 – 7| + |10 – 7| is 2 + 3 = 5.