

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 $\int_{0, 2} |x - 1| dx$?**

Answer: We can split the integral into two parts $\int_{0, 1} (1 - x) dx$ and $\int_{1, 2} (x - 1) dx$, 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 $2 + 3 = 5$.