

MTH101: Practice Exercise
Lecture No.8: Graphs of Functions
Lecture No.9: Limits

Choose the correct option for the following questions:

1) If a vertical line intersects the graph of the equation $y = f(x)$ at two points, then which of the following is true.

- I. It represents a function.
- II. It represents a parabola.
- III. It represents a straight line.
- IV. It does not represent a function.

2) Which of the following is the reflection of the graph of $y = f(x)$ about y-axis?

- I. $y = -f(x)$
- II. $y = f(-x)$
- III. $-y = -f(x)$
- IV. $-y = f(-x)$

3) Given the graph of a function $y = f(x)$ and a constant c , the graph of $y = f(x) + c$ can be obtained by

- I. Translating the graph of $y = f(x)$ up by c units.
- II. Translating the graph of $y = f(x)$ down by c units.
- III. Translating the graph of $y = f(x)$ right by c units.
- IV. Translating the graph of $y = f(x)$ left by c units.

4) Given the graph of a function $y = f(x)$ and a constant c , the graph of $y = f(x - c)$ can be obtained by

- I. Translating the graph of $y = f(x)$ up by c units.
- II. Translating the graph of $y = f(x)$ down by c units.
- III. Translating the graph of $y = f(x)$ right by c units.
- IV. Translating the graph of $y = f(x)$ left by c units.

5) Which of the following is the reflection of the graph of $y = f(x)$ about x -axis?

- V. $y = -f(x)$
- VI. $y = f(-x)$
- VII. $-y = -f(x)$
- VIII. $-y = f(-x)$

Q.No.6

If $\lim_{x \rightarrow 8^-} h(x) = 18 + c$ and $\lim_{x \rightarrow 8^+} h(x) = 7$ then find the value of 'c' so that $\lim_{x \rightarrow 8} h(x)$ exists.

Answer: $c = -11$

Q.No.7

Find the limit by using the definition of absolute value

$$\lim_{x \rightarrow 0^+} \frac{x}{|2x|}.$$

Answer: $\frac{1}{2}$

Q.No.8

Find the limit by using the definition of absolute value

$$\lim_{x \rightarrow 0^-} \frac{|x+5|}{x+5}.$$

Answer: -1

Q.No.9

Evaluate: $\lim_{x \rightarrow \infty} \frac{x^2 - 3x + 1}{x^3 + 2x^2 - 5x + 3}$.

Answer: 0

Q.No.10

Evaluate: $\lim_{z \rightarrow \infty} \frac{z^3 + 2z^2 - 5z + 3}{z^2 - 3z + 1}$.

Answer: ∞