

Test-1
Introductory Mathematical Methods for Economics

Date: 10.10.2023
Maximum Marks: 12
Time: 45 minutes

Q1 i) Does any of the following drawn on a rectangular coordinate plane represent a function $y = f(x)$? Why or why not?

a) $y^2 = 3x$

b) $y = \frac{1}{|x|}$

Substantiate your answer with the help of graph in each case. (4)

OR

i) Let $f(x)$ be a function with domain $[-2,3]$ and range $[0,8]$. What are the domain and range of the following functions:

a) $-f(-x-1)$

b) $4f(x)-1$ (4)

ii) State whether P is a necessary or a sufficient condition or both for Q to be true:

P: $x = (-8)^{1/3}$ $x \in \mathbb{R}$

Q: $x = -2$ (2)

Q2 a) Find the maximum/minimum point of $f(x) = 3x^2 - 2x - 44/3$ (3)

b) Find the equation of the line passing through the origin and has a slope of $-4/5$. (3)

Test-1
Introductory Mathematical Methods for Economics

Date: 10.10.2023
Maximum Marks: 12
Time: 45 minutes

Q1 i) Does any of the following drawn on a rectangular coordinate plane represent a function $y = f(x)$? Why or why not?

a) $y^2 = 3x$

b) $y = \frac{1}{|x|}$

Substantiate your answer with the help of graph in each case. (4)

OR

i) Let $f(x)$ be a function with domain $[-2,3]$ and range $[0,8]$. What are the domain and range of the following functions:

a) $-f(-x-1)$

b) $4f(x)-1$ (4)

ii) State whether P is a necessary or a sufficient condition or both for Q to be true:

P: $x = (-8)^{1/3}$ $x \in \mathbb{R}$

Q: $x = -2$ (2)

Q2 a) Find the maximum/minimum point of $f(x) = 3x^2 - 2x - 44/3$ (3)

b) Find the equation of the line passing through the origin and has a slope of $-4/5$. (3)