Introduction to Mathematics

Applications of Linear Functions

Restricted Domain and Range

- Sometimes domain and range are restricted even further to a set of points.
- For example, a quantity such as number of people can only be whole numbers.
- When this happens, the graph is not actually connected because every point on the line is not a solution

Restricted Domain and Range

- Same happens if there is a Linear Function whose Domain is all real number , but if that particular linear function is representing a cost function and is dependent upon the number of products produced, then in this case both number of products and cost can not be in negative. So both the domain and range of the functions will be restricted.

Example 1

The function C(x) = 15x+80,000 expresses the total cost C(x) (in dollars) of manufacturing x units of a product. If the maximum number of units which can be produced equals 50,000, state the restricted domain and range of this cost function.

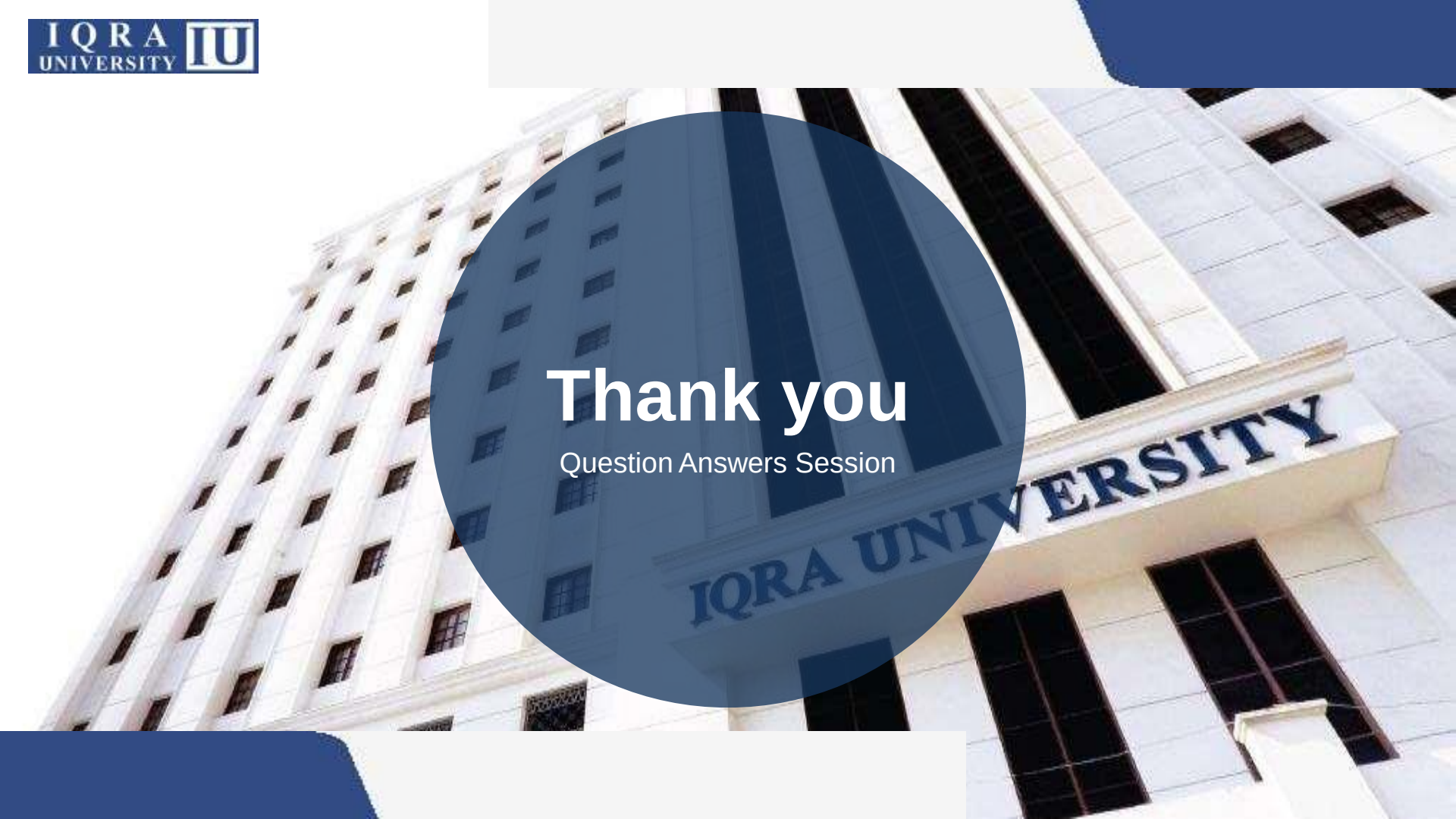
Example 2

The function q = f(p) = 280,000 – 35p is a demand function which expresses the quantity demanded of a product q as a function of the price charged for the product p, stated in dollars. Determine the restricted domain and range for this function

Example 3

A car rental agency leases automobiles at a rate of $15 per day plus $0.08 per mile driven. If y equals the cost in dollars of renting a car for one day and x equals the number of mile driven in one day:

a) Determine the function y = f(x) which expresses the daily cost of renting a car.
b) What is f(300)? What does f(300) represents?
c) Comment of the restricted domain of this function.



Thank you

Question Answers Session