

Scalar Functions MCQ Questions

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Questions

- Q1. A scalar valued function is a function that takes _____ but outputs a _____.
- One or more values, Multiple values
 - One value, Multiple values
 - One or more values, Single value
 - One value, Single values
- Q2. What are the example of a scalar valued functions?(*Select Multiple Answers*).
- $f(x) = x^2$
 - $f(x, y, z) = xy + yz$
 - $f(x, y, z) = [xy + z, xz^2, yz + 2]$
 - $f(x, y) = [xz + 2, xyz]$
- Q3. What is the domain and range for function $\cos(x)$?
- $Domain = [-\infty, +\infty], Range = -1 \text{ to } +1$
 - $Domain = [-1, +1], Range = -1 \text{ to } +1$
 - $Domain = [-1, +1], Range = -\infty \text{ to } +\infty$
 - $Domain = [-\infty, +\infty], Range = -\infty \text{ to } +\infty$
- Q4. We call $f : X \rightarrow Y$ a real-valued or scalar function on X, when _____?
- $X \subset R^m$ and $Y \subset R^n$, and $m < 1, n = 1$
 - $X \subset R^m$ and $Y \subset R^n$, and $m > 1, n = 1$

- c. $X \subset R^m$ and $Y \subset R^n$, and $m > 1, n > 1$
 - d. $X \subset R^m$ and $Y \subset R^n$, and $m = 1, n > 1$
- Q5. Examples of scalar functions. (*Select Multiple Answers*).
- a. Temperature of the room
 - b. Velocity of the vehicle
 - c. Speed of air in the room
 - d. Acceleration of a particle
- Q6. A level curve of a function $f(x, y)$ is the curve of points (x, y) where $f(x, y)$ is some constant value.
- a. True
 - b. False
- Q7. The plot of the level curves for a bunch of different constants c together, which is sometimes called a _____.
- a. scalar plot
 - b. graph plot
 - c. contour plot
 - d. vector plot
- Q8. For a function of three variables, a level set is a _____ in three-dimensional space that we will call a _____.
- a. curve, level curve
 - b. surface, level surface
 - c. surface, level curve
 - d. curve, level surface

Answer Key

- Q1. One or more values, Single value
- Q2. $f(x) = x^2$, $f(x, y, z) = xy + yz$
- Q3. $Domain = [-\infty, +\infty]$, $Range = -1$ to $+1$
- Q4. $X \subset R^m$ and $Y \subset R^n$, and $m > 1, n = 1$
- Q5. Temperature of the room, Speed of air in the room
- Q6. True
- Q7. contour plot
- Q8. surface, level surface