

Unit 7 - Week 5

Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

Week 3

Week 4

Week 5

- Motivational Example - 1
- Motivational Example - 2
- Commonality in examples
- Motivational Example - 3
- Example - 4 Explanation
- Introduction to functions
- Defintion of a function - Part 1
- Defintion of a function - Part 2
- Defintion of a function - Part 3
- Relations vs Functions - Part 1
- Relations vs Functions - Part 2
- Introduction to One-One Function
- One-One Function - Example 1
- One-One Function - Example 2
- One-One Function - Example 3
- Proving a Function is One-One
- Examples and Non- examples of One-One function
- Cardinality condition in One-One function - Part 1
- Cardinality condition in One-One function - Part 2
- Introduction to Onto Function - Part 1
- Introduction to Onto Function - Part 2
- Definition of Onto Function
- Examples of Onto Function
- Cardinality condition in Onto function - Part 1
- Cardinality condition in Onto function - Part 2
- Introduction to Bijection
- Examples of Bijection
- Cardinality condition in Bijection - Part 1
- Cardinality condition in Bijection - Part 2
- Counting number of functions
- Number of functions
- Number of One-One functions - Part 1
- Number of One-One functions - Part 2
- Number of One-One functions - Part 3
- Number of Onto functions
- Number of Bijections
- Counting number of functions
- Motivation for Composition of functions - Part 1
- Motivation for Composition of functions - Part 2
- Definition of Composition of functions
- Why study Composition of functions
- Example of Composition of functions - Part 1
- Example of Composition of functions - Part 2
- Motivation for Inverse functions
- Inverse functions
- Examples of Inverse functions
- Application of inverse functions - Part 1
- Quiz : Assignment 5**
- Week 5 Feedback

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

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Assignment 5

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-04, 23:59 IST.

1) Let A be a set with cardinality n . There are total 720 one-one functions from A to A . Then value of n is

1 point

- 3
- 6
- 10
- 4

No, the answer is incorrect.
Score: 0

Accepted Answers:
6

2) Let $X = \{1, 2, 3\}$. If $f : X \rightarrow X$ be defined as $f(1) = 3, f(2) = 1$, and $f(3) = 2$, then $f(f(1))$ is:

1 point

- 1
- 2
- 3
- Not defined

No, the answer is incorrect.
Score: 0

Accepted Answers:
2

3) Let $f : \mathbb{N} \rightarrow \mathbb{N}$ such that $f(n) = n + 15$. Then f is

1 point

- Bijective
- One-one
- Onto
- f is not a function

No, the answer is incorrect.
Score: 0

Accepted Answers:
One-one

4) A function f is $---$, if and only if, each element in the co-domain of f is the image of atmost one element in the domain. Fill the blank space:

1 point

- Neither one-one nor onto
- Both one-one and onto
- One-one
- Onto

No, the answer is incorrect.
Score: 0

Accepted Answers:
One-one

5) If $f : \mathbb{Z} \rightarrow \mathbb{Z}$ is defined as $f(n) = 11n$ and $g : \mathbb{Z} \rightarrow \mathbb{Z}$ is defined as $g(n) = (n) \bmod 7$, then $(g \circ f)(4)$ is:

1 point

- 4
- 7
- 44
- 2

No, the answer is incorrect.
Score: 0

Accepted Answers:
2

6) Let $f : X \rightarrow Y$ be a function, A and B be subsets of X . Which of the following conditions are true?

1 point

1. If $A \subseteq B$ then $f(A) \subseteq f(B)$
2. $f(A) \cap f(B) \subseteq f(A \cap B)$

- Only 1 is true.
- 1 and 2 are true.
- 2 is true, 1 is false.
- Both are false.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Only 1 is true.

7) f be a function from $\mathbb{R} - \{0\}$ to $\mathbb{R} - \{0\}$ defined as $f(x) = 2x$. What is $(f^{-1} \circ f)(2)$?

1 point

- 4
- 2
- 1
- 1/2

No, the answer is incorrect.
Score: 0

Accepted Answers:
2

8) $f : \mathbb{Z} \rightarrow \mathbb{Z}$, defined as $f(x) = x^{10}$ is a bijection.

1 point

- True
- False

No, the answer is incorrect.
Score: 0

Accepted Answers:
False

9) If f and g are functions from \mathbb{R} to \mathbb{R} and $f(x) = 3x + 5$ and $g(x) = 1 - 2x$, then $(f \circ g)(1)$ is:

1 point

- 1
- 2
- 15
- 17

No, the answer is incorrect.
Score: 0

Accepted Answers:
2

10) If $f : A \rightarrow B$ is an onto function, then -

1 point

- $|A| = |B|$
- $|A| \geq |B|$
- $|A| \leq |B|$
- Cannot say

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $|A| \geq |B|$