

Unit 18 - Week 12: Algebra-II

Course outline

How to access the portal

Week 1: Mathematical Logic

Week 2: Mathematical Logic

Week 3: Mathematical Logic And Set Theory

Week 4: Graph Theory

Week 5: Graph Theory-II

Week 6: Set Theory & Number Theory

Week 7: Set Theory & Number Theory

Week 8: Combinatorics

Week 9: Combinatorics

Live Session-1

Week 10: Number Theory

Live Session-2

Week 11: Algebra

Week 12: Algebra-II

Lec 1: Cyclic groups, Direct Products, Subgroups

Lec 2: Cosets, Lagrange's theorem

Lec 3: Rings and Fields

Lec 4: Construction of Finite Fields

Quiz : Assignment 12

Feedback form

Assignment 12

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

Due on 2019-10-23, 23:59 IST.

1) Let G be a group of order 14 and let H be a subgroup of G . What could be the order of H ?

4 points

- 2
 7
 1
 4

No, the answer is incorrect.
Score: 0

Accepted Answers:

2
7
1

2) Let G be a group and let H be a subgroup of G of order 10. What could be the order of G ?

4 points

- 20
 500
 128
 75

No, the answer is incorrect.
Score: 0

Accepted Answers:

20
500

3) Which of the following statements are true?

4 points

- The non zero elements of any field forms a commutative group.
 The non zero elements of any ring forms a commutative group
 If the non zero elements of a ring forms a group, then the ring is a field.
 If the non zero elements of a ring forms a cyclic group, then the ring is a field.

No, the answer is incorrect.
Score: 0

Accepted Answers:

The non zero elements of any field forms a commutative group.
If the non zero elements of a ring forms a cyclic group, then the ring is a field.

4) Which of the following algebraic structures form a field?

4 points

- (\mathbb{Z} , +, \times)

(\mathbb{C} , +, \times)

(\mathbb{Q} , +, \times)

(\mathbb{R} , +, \times)

No, the answer is incorrect.
Score: 0

Accepted Answers:

(\mathbb{C} , +, \times)
(\mathbb{Q} , +, \times)
(\mathbb{R} , +, \times)

5) Which of the following algebraic structures form a ring?

4 points

- (\mathbb{Z} , +, \times)

(\mathbb{C} , +, \times)

(\mathbb{Q} , +, \times)

(\mathbb{R} , +, \times)

No, the answer is incorrect.
Score: 0

Accepted Answers:

(\mathbb{Z} , +, \times)
(\mathbb{C} , +, \times)
(\mathbb{Q} , +, \times)
(\mathbb{R} , +, \times)

6) Which of the following algebraic structures form a finite field?

4 points

- {0,1,2, ...,n-1} with modulo n arithmetic.
- {0,1,2, ... ,n} with modulo n arithmetic.
- {0,1,2, ...,n-1} with modulo n arithmetic with n being a prime number.
- {0,1,2, ..., n} with modulo n arithmetic with n being a prime number.

- 3
 4
 2
 1

No, the answer is incorrect.
Score: 0

Accepted Answers:

3

7) Consider the polynomial $p(x) = x^2 + 1$. Is $p(x)$ reducible in $\mathbb{Z}_3[x]$, i.e can $p(x)$ be written as product of two linear polynomials in $\mathbb{Z}_3[x]$?

4 points

- NO
 YES

No, the answer is incorrect.
Score: 0

Accepted Answers:

NO

8) For which of the following primes p can we construct a field of order p^2 using the polynomial $x^2 + 1$?

4 points

- 3
 7
 11
 5
 13

No, the answer is incorrect.
Score: 0

Accepted Answers:

3
7
11