Assignment 12

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

1. Let $G$ be a group of order 14 and let $H$ be a subgroup of $G$. What could be the order of $H$?
   - 2
   - 4
   - 7
   - 14
   - Both
   
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   - 7

2. Let $G$ be a group of order 15. What could be the order of $H$?
   - 3
   - 5
   - 6
   - 15
   - 7
   
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   - 3
   - 5
   - 15

3. Which of the following statements are true?
   - The zero vector of any field forms a commutative group.
   - The non-zero elements of any ring form a commutative group.
   - The non-zero elements of a ring form a group.
   - The ring is a field.
   - The ring is a field.
   
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:

4. Which of the following algebraic structures form a field?
   - $(\mathbb{Z}, +, \cdot)$
   - $(\mathbb{C}, +, \cdot)$
   - $(\mathbb{Q}, +, \cdot)$
   - $(\mathbb{R}, +, \cdot)$
   
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:

5. Which of the following algebraic structures form a ring?
   - $(\mathbb{Z}, +, \cdot)$
   - $(\mathbb{C}, +, \cdot)$
   - $(\mathbb{Q}, +, \cdot)$
   - $(\mathbb{R}, +, \cdot)$
   
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:

6. Which of the following algebraic structures form a finite field?
   - $(\mathbb{Z}_2, +, \cdot)$ with modulo 2 arithmetic.
   - $(\mathbb{Z}_3, +, \cdot)$ with modulo 3 arithmetic.
   - $(\mathbb{Z}_4, +, \cdot)$ with modulo 4 arithmetic.
   - $(\mathbb{Z}_5, +, \cdot)$ with modulo 5 arithmetic.
   
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:

7. Consider the polynomial $p(x) = x^3 + 1$. Is $p(x)$ reducible in $\mathbb{Z}_2[x]$? If yes, write down its factorization.
   
   Accepted Answers:
   - NO
   - YES
   
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:

8. For which of the following primes $p$ can we construct a field of order $p^2$ using the polynomial $x^2 + 1$?
   - 3
   - 5
   - 11
   - 13
   
   No, the answer is incorrect.
   Score: 0
   Accepted Answers: