

Unit 7 - Week 6: Set Theory & Number Theory

Course outline

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Week 6: Set Theory & Number Theory

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Lec 2: ZF Axiomatization of Set Theory

Lec 3: Partially ordering relations

Lec 4: Natural numbers, divisors

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Assignment 6

The due date for submitting this assignment has passed. **Due on 2019-09-11, 23:59 IST.**
As per our records you have not submitted this assignment.

1) Define a relation \sim on $\mathbb{N} \times \mathbb{N}$ as follows: $(m, n) \sim (p, q)$ iff $m + q = n + p$. Which of the following ordered pairs is the odd one out with respect to the relation \sim ? **1 point**

- (3,4)
 (7,8)
 (1,2)
 (6,5)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(6,5)

2) Define a relation \bowtie on $\mathbb{Z} \times (\mathbb{Z} - \{0\})$ as follows: $(a, b) \bowtie (c, d)$ iff $ad = bc$. Which of the following ordered pairs of integers is the odd one out with respect to the relation \bowtie ? **1 point**

- (2,-1)
 (-2,1)
 (1,-2)
 (6,-3)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(1,-2)

3) Define a relation \bowtie on $\mathbb{Z} \times (\mathbb{Z} - \{0\})$ as follows: $(a, b) \bowtie (c, d)$ iff $ad = bc$. Which of the following ordered pairs of integers belongs to the sum of $[(4, 7)]_{\bowtie}$ and $[(3, -4)]_{\bowtie}$? **1 point**

- (-37,28)
 (15,84)
 (10,-56)
 (37,28)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(10,-56)

4) Which all of the following is/are uncountable? **1 point**

- (P) the set of all rational numbers in (0,1)
 (Q) the set of all ordered pairs of rational numbers in (0,1)
 (R) the set of all real numbers in (0,1)
 (S) the set of all ordered pairs of real numbers in (0,1)

- only R
 only R and S
 only Q and R and S
 only P

No, the answer is incorrect.
Score: 0

Accepted Answers:
only R and S

5) Which of the following does not belong to the Dedekind cut corresponding to $\sqrt{2}$? **1 point**

- 1.4142136
 1.41421356
 1.414213562
 1.414213

No, the answer is incorrect.
Score: 0

Accepted Answers:
1.4142136

6) GCD of 24548 and 43928 is not equal to **1 point**

- GCD of 19380 and 24548
 GCD of 5178 and 19380
 GCD of 3876 and 5168
 GCD of 1292 and 3876

No, the answer is incorrect.
Score: 0

Accepted Answers:
GCD of 5178 and 19380

7) Ordered pair of integers (a,b) so that $43928a + 24548b$ is the GCD of 24548 and 43928 is **1 point**

- (-5,9)
 (5,-9)
 (4,-10)
 (5,-10)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(-5,9)

8) Which of the following sets is not equinumerous with a proper subset of itself? **1 point**

- the set of all natural numbers that are prime and greater than 100
 the set of all natural numbers that are greater than 100
 the set of all natural numbers that are prime and even
 the set of all natural numbers that are prime and odd

No, the answer is incorrect.
Score: 0

Accepted Answers:
the set of all natural numbers that are prime and even