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Chinese Remainder Theorem: Code

Quiz • 15 min

Review Learning Objectives

1. Implement the algorithm to construct the number from the Chinese Remainder Theorem.

1 / 1 point

You need to implement the function $ChineseRemainderTheorem(n_1, r_1, n_2, r_2)$ which takes two coprime numbers n_1 and n_2 and the respective remainders $0 \leq r_1 < n_1$ and $0 \leq r_2 < n_2$, and must return the number r such that $0 \leq r < n_1 n_2$, $r \equiv r_1 \mod n_1$ and $r \equiv r_2 \mod n_2$.

You have access to the function $ExtendedEuclid(a, b)$ which returns pair of numbers (x, y) such that $ax + by = GCD(a, b)$.

Implement the algorithm explained in the lectures.

Submit your assignment

Due Jan 15, 11:59 PM IST

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```
1  def ChineseRemainderTheorem(n1, r1, n2, r2):
2    x, y = ExtendedEuclid(n1, n2)
3    return (n1*x*r2 + n2*y*r1) % (n1*n2)
4
5  #ChineseRemainderTheorem(11, 3, 17, 7)
```

Run

Reset

```
No Output
```

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Correct

Good job!