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## Problem (5-6)

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## Problem 5

1/1 point (graded)

The RSA cryptosystem is the first practical public key cryptosystem invented in 1978.

Choose the correct statement.

- The RSA cryptosystem is named after Riemann, Socrates, and Aristotle.
- The RSA cryptosystem is very secure because its security was rigorously proved by Reciprocity Laws on prime numbers.
- The security of the RSA cryptosystem was not yet rigorously proved. People believe the RSA cryptosystem is probably secure because factoring a given integer seems a computationally hard problem.
- Because the computer technology is highly developed, it is very easy to attack the RSA cryptosystem today. By that reason, the RSA cryptosystem is not used any more today.

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You have used 1 of 2 attempts

**1** Answers are displayed within the problem

## Problem 6

1/1 point (graded)

Consider the RSA cryptosystem with parameter N=55, encryption (public) key E=7, and decryption key D=23. Assume that the plaintext is X=9. Find the ciphertext Y.

(Note that Y is an integer satisfying  $0 \leq Y \leq N-1$  and  $Y \equiv X^E \pmod{N}$ )

Y =

4

✓Answer: 4 4

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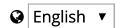
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