edX   **KyotoUx:** 004x Fun with Prime Numbers: The Mysterious World of Mat...

🔖
Bookmarks

Week 3 > Reciprocity Laws and Mystery of Triangles > Problem (1-2)

▸ Introduction

🔖 Bookmark

▸ Week 1

PROBLEM 1 (1/1 point)

▸ Week 2

Fermat's theorem on sums of two squares and its generalizations to other quadratic polynomials are understood by a law of prime numbers called the Quadratic Reciprocity Law. Who conjectured it, and who proved it? Choose the correct statement.

▾ **Week 3**

Review of Week 2

○ The Quadratic Reciprocity Law was conjectured by Euler and Legendre, and finally proved by Gauss when he was 19 years old. ✔

Reciprocity Laws and Mystery of Triangles
Week 3 Problems due Feb 10, 2016 at 23:30 UTC 🖉

○ The Quadratic Reciprocity Law was conjectured by Euler and Gauss, and finally proved by Legendre when he was 23 years old.

Homework 3
Homework 3 due Feb 10, 2016 at 23:30 UTC🖉

○ The Quadratic Reciprocity Law was conjectured by Legendre and Gauss, and finally proved by Euler when he was 37 years old.

Completion Checklist 3
Completion Checklist 3 due Feb 10, 2016 at 23:30 UTC 🖉

○ The Quadratic Reciprocity Law was conjectured by Euler, Legendre, and Gauss independently about 200 years ago. Since it is a very difficult problem, it has not been completely solved today.

Final Exam
Final Exam due Feb 17, 2016 at 23:30 UTC 🖉

You have used 1 of 2 submissions

▸ Japan Gateway: Kyoto University Top Global Program

PROBLEM 2 (2/2 points)

It is known that a prime number P congruent to 1 or 3 modulo 8 can be written as the sum of a square and twice a square. Confirm this theorem for the following prime numbers.

(1) $17 = A^2 + 2 \times B^2$
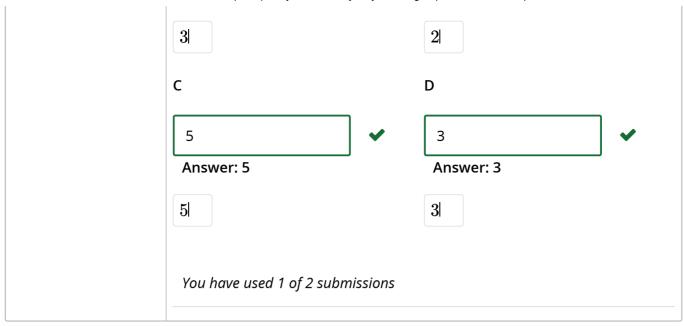
(2) $43 = C^2 + 2 \times D^2$

A   B

3   ✔   2   ✔

Answer: 3   Answer: 2

3|

2|

C

D

| 5 | ✔ |

Answer: 5

| 3 | ✔ |

Answer: 3

5|

3|

You have used 1 of 2 submissions

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