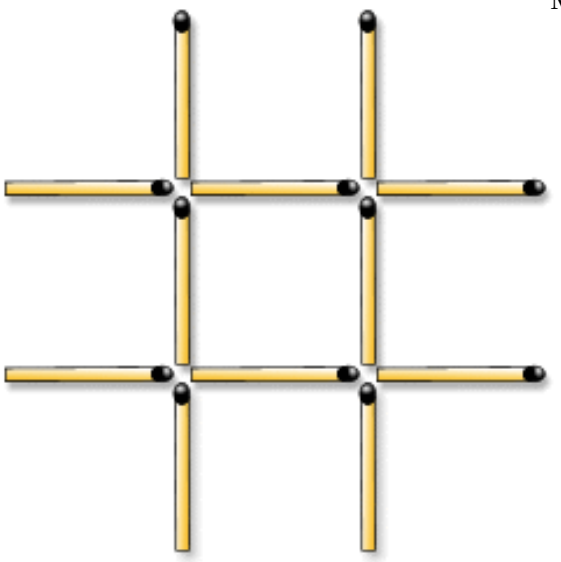
Mathematics Challenge

Issue 124

Dear students and parents, welcome to the Dulwich Mathematics Challenge. Test your brainpower, whatever your mathematical ability. If you would like to contribute a puzzle please email me at chris.stanley@dulwich-beijing.cn



Move three matchsticks to make three perfect squares.

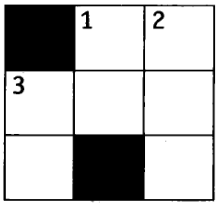
Last week:
1. **D**
2. **B**
3. **B**
4. **384**
5. **9**
6. **E**

Junior Mathematical Challenge

1. A crossnumber is like a crossword except that the answers are numbers with one digit in each square. What is the sum of the two numbers in the bottom row of the crossnumber shown?

A 9 B 8 C 7 D 6 E 5

CLUES
Across (A)
1. Prime number
3. Square of 3D
Down (D)
1. Prime number
2. Square of 1D
3. Square root of 3A



2. In this question (including all five answers) the letters 'o' and 'f' each appear

A once B twice C three times D four times E five times

3. Two cats together catch sixty mice. If Rosie catches three mice for every two that Josie catches, how many does Josie catch?

A 2 B 30 C 24 D 40 E 36

JMC 1988

Junior Mathematical Olympiad

4. A square of side length 1 is drawn. A larger square is drawn around it such that all parallel sides are a distance 1 apart. This process continues until the total perimeter of the squares drawn is 144. What is the area of the largest square drawn?

5. The sum of four different prime numbers is a prime number. The sum of some pair of numbers is a prime number, as is the sum of some triple of the numbers. What is the smallest possible sum of the four prime numbers?

JMO 2014

Intermediate Olympiad

6. Julio creates a procedure for turning a set of three numbers into a new set of three numbers: each number is replaced by the sum of the other two. For example, (3, 4, 6) becomes (10, 9, 7). How many times must Julio apply this procedure to the set (1, 2, 3) before he first obtains a set containing the number 2013?

A 8 B 9 C 10 D more than 10 times E 2013 will never appear

Pink 2013