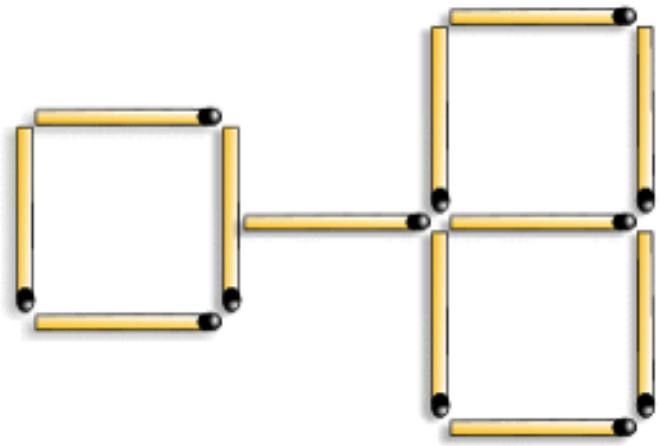
Mathematics Challenge

Issue 134

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 six matches so that five squares are formed.

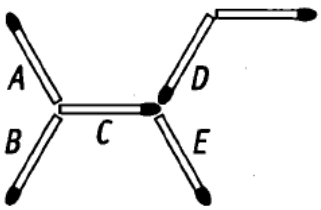


Last week:
1. C
2. D
3. B
4. 1/144
5. 1001
6. C

Junior Mathematical Challenge

1. Humphrey the horse at full stretch is hard to match. But that is just what you have to do: move one match to make another house just like (i.e. congruent to) Humphrey. Which match must you move?

A B C D E



2. A piece of paper 16cm by 32cm is cut in half. One of these pieces is cut in half again, and the process is repeated until a piece 1cm by 2cm is eventually obtained. How many cuts are needed altogether?

A 4 B 6 C 8 D 10 E can't be sure

3. Think of any whole number. Double it and add five. Double this answer and then add two. Now take away the number you first thought of. Then, no matter which number you start with, your answer will always be

A even B a multiple of 3 C a multiple of 5 D a multiple of 6 E odd

JMC 1992

Junior Mathematical Olympiad

4. 8 = 3 + 5 is the sum of two different prime numbers. What is the smallest whole number which can be written as the sum of two different prime numbers in two different ways?

5. What is the surface area of a cube which just fits inside a sphere of radius 1cm?

JMO 1992

Intermediate Olympiad

6. Andrew and Dean recently took part in a marathon. After they had finished, they noticed that Andrew had finished ahead of twice as many runners as finished ahead of Dean and that Dean had finished ahead of 1½ times as many runners as finished ahead of Andrew. Andrew finished in 21st place. How many runners took part in the marathon?

A 31 B 41 C 51 D 61 E 81

Grey 2013