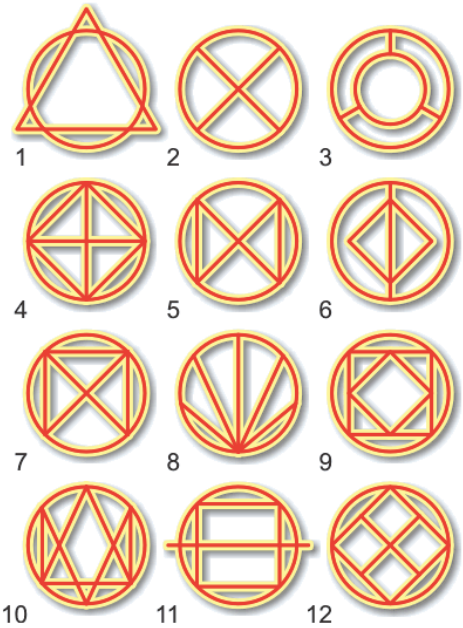
Mathematics Challenge

Issue 128

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



The object of this puzzle is to figure out which of the twelve patterns can't be drawn with a pencil in one continuous line so that you don't take the pencil off the paper. You are not allowed to go over any part of the line twice, or cross it.

Last week:

1. B
2. D
3. C
4. 0, 4, 5
5. 1, 2, 3, 4, 5, 6
6. E

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Junior Mathematical Challenge

1. This part of the UK SMC logo can be drawn without taking your pencil off the paper and without going over any line twice. If you start at S, at which corner will you finish?

A U B K C S D M E C

2. At which of these times are the two hands of a clock closest to being on top of each other?

A 6.30 B 6.31 C 6.32 D 6.33 E 6.34

3. A two-digit number is divided by the sum of its digits. What is the largest possible remainder?

A 9 B 13 C 15 D 16 E 17

JMC 1992

Junior Mathematical Olympiad

4. Pierre is on a diet and must eat a fixed quantity of carbohydrate at lunch. To get that quantity, Pierre can eat 80g of pasta and 40g of bread. Alternatively he can eat 100g of pasta and 30g of bread. If he wants to eat only pasta, how much pasta should he eat?

January 2014 Mentoring

5. Jules wants to impress his girlfriend Sharon. He gives her a list of two digit numbers and asks her to pick one. Jules asks Sharon the sum of the digits of the number then pretends to read her mind. From the sum he is able to 'guess' the number with certainty. At most, how many numbers were on his list?

March 2014 Mentoring

Intermediate Olympiad

6. Four types of rectangular tile have sizes 300mm × 300mm, 300mm × 600mm, 600mm × 600mm and 600mm × 900mm. Equal numbers of each type of tile are used, without overlaps, to make a square. What is the smallest square that can be made?

Cayley 2014