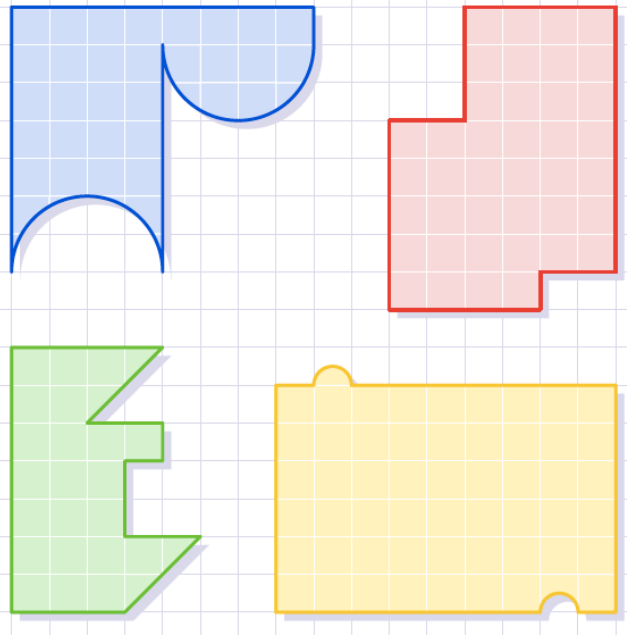# Mathematics Challenge

Issue 132

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

Cut each of the four shapes into two identical pieces. The pieces can be mirror images of each other.
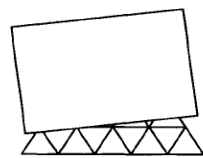
Junior Mathematical Challenge

1. Some small equilateral triangles are fitted together to make one large equilateral triangle. The large triangle is shown here partly covered by a sheet of paper. How many small triangles were used altogether?

    A 12   B 13   C 15   D 25   E 45

2. I bought seven packets of biscuits. Each packet cost the same and at the till I got 4p change. How much did I give the cashier?

    A £1   B £2   C £3   D £4   E £5

3. Mathematical Pie is a magazine for pupils at school. The cost per copy depends on how many copies a school orders. In 1990, 1 copy costs 32p; 2 copies costs 23p each; 3 – 6 copies costs 20p each; 7 – 39 copies costs 17p each; 40 – 149 copies costs 16p each. If your school bought 18 copies of one issue, how much change would they have got from £10?

    A £3.06   B £4.24   C £5.86   D £6.94   E £9.83

Junior Mathematical Olympiad

4. How many digits are there in the smallest number composed entirely of fives (e.g 555555) which is divisible by 99?

5. In a sequence of positive integers, each term is larger than the previous term. Also, after the first two terms, each term is the sum of the previous two terms. The eighth term of the sequence is 390. What is the ninth term?

Intermediate Olympiad

6. Two candles are the same height. The first takes 10 hours to burn completely whilst the second takes 8 hours to burn completely. Both candles are lit at midday. At what time is the height of the first candle twice the height of the second candle?