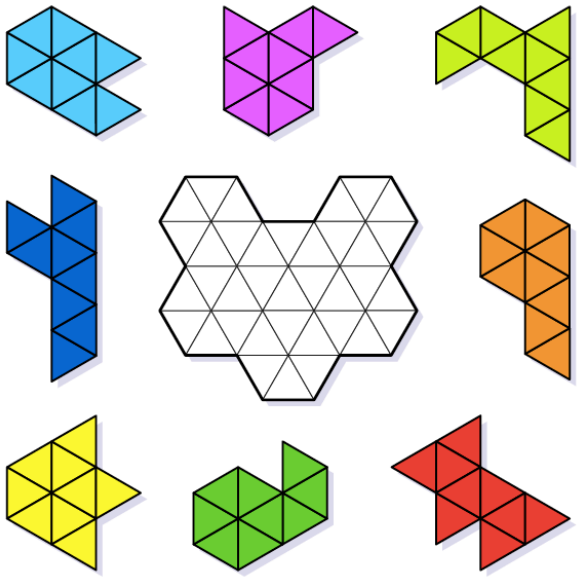
# Mathematics Challenge

**Issue 120**

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



Which four pieces should be used to form the bowl shown in the middle? Pieces can be rotated or flipped but they should not overlap each other.

**Last week:**
1. **E**
2. **E**
3. **D**
4. **64 + 4π**
5. **4 x 4 x 4**
6. **3**



## Junior Mathematical Challenge

1. What is the value of $((1 \times 2 \div (3 \times 4) - 5) \times 6 - 7) \div (8 \times 9)$?

A -1/2 B – 189/8 C -7/24 D – 1/72 E none of these

P1

2. To the nearest whole number, what is the mean number of letters per word in this sentence?

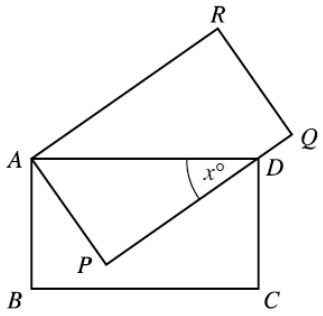
A 2 B 3 C 4 D 5 E 17

3. The average of x and y is 3y/4. What is x/y?

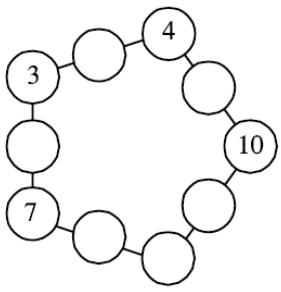
A ¼ B ½ C ¾ D 2 E can't be sure

P2

## Junior Mathematical Olympiad




4. Each of the numbers from 1 to 10 is to be placed in the circles so that the sum of each line of three numbers is equal to T. Four numbers have already been entered. Find all the possible values of T.

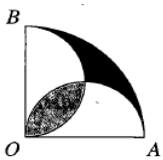



5. In the diagram ABCD and APQR are congruent rectangles. The side PQ passes through the point D and angle PDA = x°. Find an expression for angle DRQ in terms of x.

JMO 2008

## Intermediate Olympiad

6. The diagram shows a quarter-circle with centre O and two semicircular arcs with diameters OA and OB. Calculate the ratio of the area of the region shaded grey to the area of the region shaded black.




Hamilton 2010