Problem of the Week
Problem A and Solution
What Number Am I?

Problem

I am a 4-digit number. Use the following clues to determine my digits:

(1) My hundreds digit is the difference between the number of sides of a hexagon and the number of sides of a triangle.

(2) Reading my digits from left to right, they are in increasing order from the thousands digit to the ones digit. Also, they increase by the same amount each time.

(3) The difference between my tens digit and my ones digit is equal to the number of sides of an octagon divided by the number of right angles in a rectangle.

What number am I?

Solution

Using Clue (1), the number of sides of a hexagon is 6 and the number of sides of a triangle is 3. The difference between these two numbers is $6 - 3 = 3$, so the hundreds digit is 3.

Using Clue (3), the number of sides of an octagon is 8 and the number of right angles in a rectangle is 4. So, the difference between the tens digit and the ones digit is $8 \div 4 = 2$.

Using Clue (2), since the digits increase by the same amount each time, then as we read the digits from left to right the numbers will increase by 2. Since the hundreds digit is 3, then the tens digit must be $3 + 2 = 5$. Since the tens digit is 5, then the ones digit must be $5 + 2 = 7$. Working backwards, since the hundreds digit is 3, then the thousands digit must be $3 - 2 = 1$.

Therefore the number is 1357.