Age 11+ Level ★★
Worksheet 1
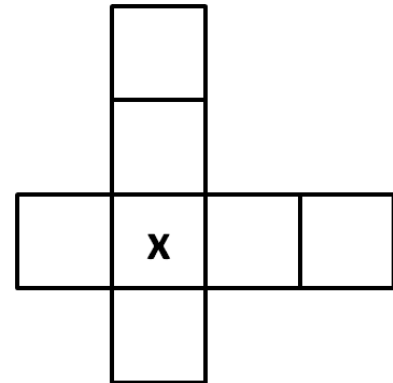
1. **Symbol**
   We define $a \oplus b = ab + a + b$.
   If $3 \oplus 5 = 2 \oplus x$, what is the value of x?

2. **Crossover**
   The numbers 2, 3, 4, 5, 6, 7 and 8 are placed in the squares in this diagram.

   The four numbers in the horizontal row add up to 21, and the four numbers in the vertical column also add up to 21.
   Which number should replace x?

3. **Geometric Quadrilateral**
   Each interior angle in a quadrilateral (apart from the smallest) is twice the previous one.
   What is the size of the smallest interior angle?

4. **Multiplication Mistake**
   Jane made a mistake when writing down a multiplication, and she multiplied by 54 instead of 45.
   Her answer was 198 more than it should have been.
   What number did she multiply 54 by?

5. **Fifty Coins**
   Cheryl finds a bag containing 50 coins.
   The total value of the coins is £1.81.
   If the bag only contains two-pence and five-pence coins, how many more five-pence coins are there than two-pence coins?

6. **Turnips**
   Baldrick can afford to buy either 6 parsnips and 7 turnips, or 8 parsnips and 4 turnips. Both options leave him with no change.

   If he only bought turnips, how many could he afford?

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.