Age 11+ Level ★★
Worksheet 2

1. **Smallest Abundant Number**
   An abundant number is a positive integer N such that the sum of the factors of N (not including N itself) is greater than N.

   What is the smallest abundant number?

2. **Jenny's Logic**
   Jenny and Tom have a set of cards numbered 1-7. Jenny chose three cards at random, and Tom chose two of the remaining cards.

   Jenny told Tom: "I can deduce that the sum of the numbers of your cards is even". What was the sum of the numbers on Jenny's cards?

3. **Adjacent Factors**
   Peter wrote down a list of different positive integers less than or equal to 10. For each pair of adjacent numbers, one of the numbers was divisible by the other.

   What is the longest list that Peter could have written?

4. **Back of the Queue**
   What is the remainder when the number $743\,589 \times 301\,647$ is divided by 5?

5. **Cakes and Buns**
   The Pythagoras Patisserie sells triangular cakes at 39p each and square buns at 23p each. Helen spent exactly £5.12 on an assortment of these cakes and buns.

   How many cakes and how many buns did she buy?

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