Age 11+ Level ★★
Worksheet 2

1. **Musical Maths**
    The musical *Rent* contains a song which starts 'Five hundred and twenty five thousand six hundred minutes'.
    Is this closest to a week, a month, a year, a decade or a century?

2. **Ratio Swap**
    In a group of 48 people, the ratio of adults to children is 3 : 5.
    How many adults need to join the group to make the ratio of adults to children 5 : 3?

3. **Out of Sync**
    Albert Einstein was standing on the station platform thinking about relativity when he noticed that he could see two station clocks. Each clock was digital, showing only hours and minutes.

    He observed that the display on one clock changed to the next minute 10 seconds before the correct time, whereas the display on the other clock changed to the next minute 10 seconds after the correct time.

    For what fraction of the day did the clocks show the same time?

4. **Fruit Basket Ratio**
    My fruit basket contains apples and oranges.

    The ratio of apples to oranges in the basket is 3 : 8.
    When I remove one apple the ratio changes to 1 : 3.
    How many oranges are in the basket?

5. **Stair Climb**
    Boris, Spike and Percival are going to race up the 99 steps that lead from the beach to the car park at the top of the cliff. Boris can run up five steps in the same time as Spike can run up four steps, which is the same time as Percival can run up three steps. It is agreed that Boris starts from the bottom, Spike starts 21 steps up and Percival 38 steps up. If they all start at the same time, in what order will they reach the top?

These problems are adapted from UKMT (ukmt.org.uk) and SEAMC (seamc.asia) problems.