

**Age 11+ Level ★★
Worksheet 3****1. Quiz Question**

There are 81 players taking part in a knock-out quiz tournament. Each match in the tournament involves three players, and only the winner remains in the tournament.

How many matches are required until there is an overall winner?

2. Sum of Ten

The sum of ten distinct positive integers is 100.

What is the largest possible value of any of the ten integers?

3. Filling Morecambe Bay

A notice on Morecambe Promenade reads: "It would take 20 million years to fill Morecambe Bay from a bath tap."

Assuming that the flow from a bath tap is 6 litres per minute, what is the approximate capacity of Morecambe Bay, in litres?

4. Roses and Carnations

Class 7H has collected £56 to buy a bunch flowers for their teacher. Roses cost £3 each and carnations cost £2 each.

Assuming they spend all of their money, how many different possible bunches do they have to choose from?

5. Bookshop

A book costs £3.40 and a magazine costs £1.60.

If Clara spends exactly £23 on books and magazines, how many of each does she buy?

6. Product of Fractions

Can you find an efficient way of calculating the product below, without using a calculator?

$$1\frac{2}{3} \times 1.8 \times 1\frac{1}{7} \times 1.75 \times 1\frac{5}{6}$$

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