



Fractions, Decimals and Percentages

Age 14+ Level ★ Worksheet 1

1. A Drink of Water

A bottle contains 750ml of mineral water. Rachel drinks 50% more than Ross, and the two friends finish the bottle between them. How much does Rachel drink?

2. Entrance Exam

In a university admissions test, Dean gets exactly 10 of the first 15 questions correct. He then answers all the remaining questions correctly.

Dean finds out he has answered 80% of all the questions correctly. How many questions are there on the test?

3. Petrol Station

Andrea's petrol tank holds up to 44 litres of fuel. She goes to the garage when her tank is a quarter full and fills up the tank until it is two-thirds full. How many litres of petrol does she put in the tank?

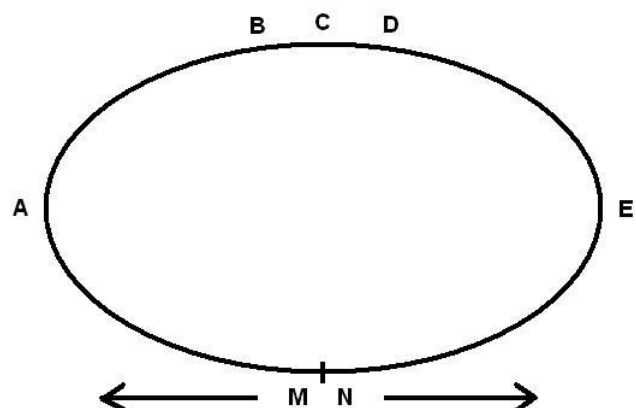
4. The Grand Old Duke of York

The Grand Old Duke of York had 10 000 men. He lost 10% of them on the way to the top of the hill. He then lost 15% of the rest on the way back down.

What percentage of his 10 000 men remained when he got to the bottom of the hill?

5. Meeting Point

Nikki covers any distance in one third of the time it takes Malcolm to run the same distance. They set off in opposite directions around the track as shown.



Where will they meet for the first time?

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



Fractions, Decimals and Percentages

Age 14+ Level ★ Worksheet 2

1. Porridge

To make porridge, Goldilocks mixes together 3 bags of oats with one bag containing 20% wheat bran and 80% oats.

All the bags have the same volume.

What percentage of the volume of Goldilocks' porridge mixture is wheat bran?

2. Test Scores

Ivan, Tibor and Alex sat a test and achieved 85%, 90% and 95% respectively. Tibor scored just one more mark than Ivan.

How many marks did Alex get?

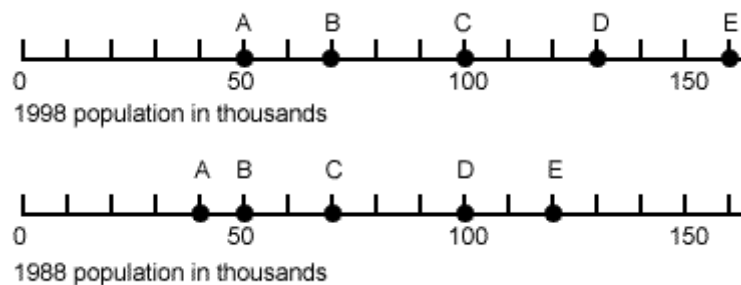
3. Tennis Club

Three-quarters of the members of a junior tennis club are boys and the rest are girls.

What is the ratio of boys to girls among these members?

4. Baby Boom

The populations of five cities A, B, C, D, E, in 1998 and 1988, are shown on these scales.



Which of the five cities showed the largest percentage increase in population from 1988 to 1998?

5. Pied Piper

On Monday the Pied Piper caught 1000 rats in a city.

On Tuesday he caught 10% fewer rats than on Monday.

On Wednesday he caught 20% more than on Tuesday.

On Thursday he caught 30% fewer than on Wednesday.

On Friday he rested.

How many rats did he catch in total that week?

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