Problem of the Week: Week 3 (Sum2) : Year 7: Percentages

- Express one quantity as a percentage of another
- Compare two quantities using percentages
- Use standard units of measure to solve problems involving percentages, including mass, length, time, money with integer and decimal quantities.

Put Out the Flags

Tim and Beth both have a string of flags. They have red flags, white flags, blue flags, and union jacks.

They both counted how many of each colour they had.

Tim's flags are 50 % blue, 35 % red, 10 % white and 5 % union jacks.

Beth's flags are 40 % blue, 32 % red, 20 % white and 8 % union jacks.

They both have as few flags as is possible with those percentages.

Who has the most flags?

Who has the most red flags?

Who has the most blue flags?

How many union jacks do they have between them?

https://nrich.maths.org/1115

Solution

First think of the percentages as their equivalent fractions:

Tim has 1/2 blue, 7/20red, 1/10 white and 1/20 union jack.

Give Tim's fractions a common denominator of twentieths

Tim has 10/20 blue, 7/20 red, 2/20 white and 1/20 union jacks.

Therefore, Tim has 20 flags.

Beth has 2/5 blue, 8/25 red, 1/5 white and 2/25 union jacks.

Give Beth's fractions a common denominator of twenty-fifths

Beth has 10/25 blue, 8/25 red, 5/25 white and 2/25 union jacks.

Therefore, Beth has 25 flags.

Now, we know that Beth has more flags than Tim. Beth has one more red flag, and both have the same number of blue flags. Between them, they have 3 union jacks.
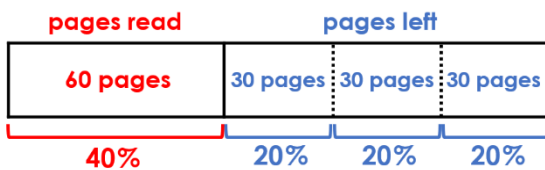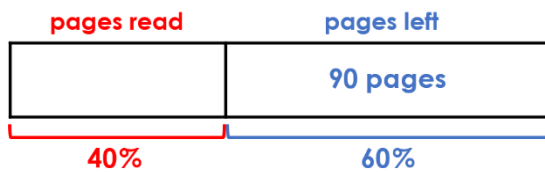
Pages left

I have read 40% of my book

I have 90 pages left to read.

How many pages have a read so far?

Solution

60 pages have been read

Clothes Shop Sale

A pair of trainers cost £32.
The shop had a sale.
Now the pair of trainers cost £24.
What is the percentage discount?

Solution

£8 off in the sale.
Next step: £8 is what fraction of £32?

start price

| £32 | |
| £24 | |

£8 — £8 — £8 — £8

£8 is one-quarter of £32. One-quarter is 25%.
There is 25% off in the sale.

(Taken from 'I See Problem -Solving UKS2 ' by Gareth Metcalfe)