Here is something from Transum Subscriber Ann that is really useful:

Level 4 Equivalent Fractions requires us to express fractions in their simplest forms.

"When I think of cancelling fractions, I always think of times tables and perhaps the divisibility rules. These are my preferred methods, but sometimes I struggle, particularly with the last question. Could we use a different method for these trickier fractions?

Look at the question 152/171

What's 171-152 ? 19 (a prime number)

If 152 and 171 have a non-trivial common factor, it must be 19. Let's check to see:
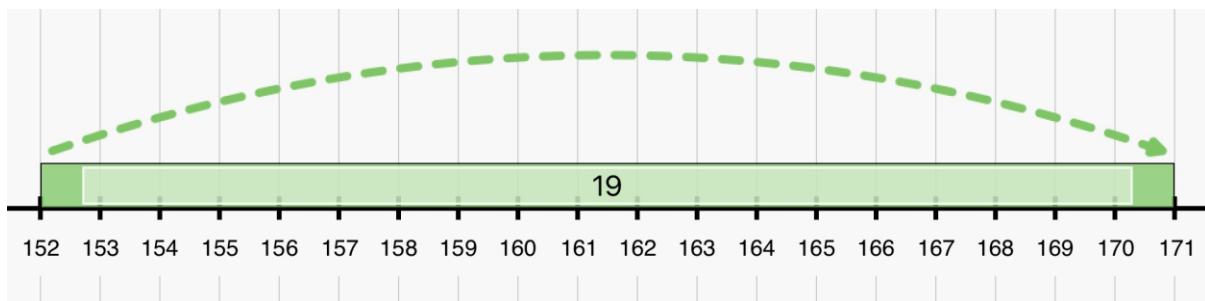
152÷19 = 8   171÷19 = 9

19 is a common factor and the simplified fraction is 8/9

Why does this work?

First some language. 2 is a common factor of 6 and 10. We can also say that 6 and 10 are multiples of 2. In other words, 6 and 10 are both in the 2 times table.

Example One (continued from above)

If 152 and 171 have a common factor, then 152 and 171 must be in the same times table. Which one?

171 and 152 have a difference of 19. This tells us that they *might* be consecutive multiples in the 19 times tables. In that case, they would have a common factor of 19.

Could they have another common factor? 19 is a prime number, so we either have one jump of 19 or nineteen jumps of 1. There are no other options.
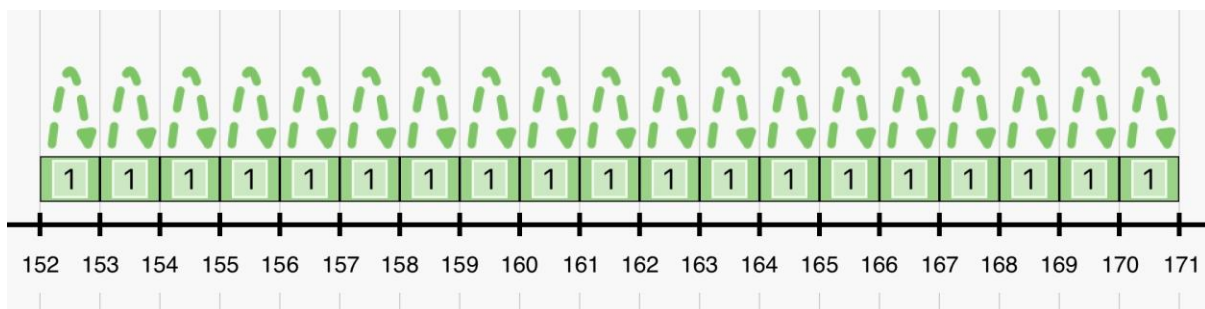
All pairs of integers have the trivial common factor of one (the jumps of one shown above). We now check to see whether 19 is a common factor of 152 and 171.

Example Two

Let's try that again. Let's take the question 37/44

44-37 = 7 (a prime number)

If 37 and 44 have a non-trivial common factor, it must be 7. Let's check to see:

37÷7 = 5 remainder 2

44÷7= 6 remainder 2

7 is not a common factor.

Therefore, the only common factor is one. This means that 37/44 is already in its simplest form.

Disclaimer

This is a method of "last resort" when the common factor isn't obvious.

It works well if the difference is prime.

It's sometimes useful when the difference isn't prime:

Example

Let's look at the question 91/105

What's 105-91? It's 14 (NOT a prime number, so there will be more factors to consider)

What are the factors of 14? These are 1, 2, 7 and 14

91 and 105 must be in the same times table if they have a common factor. Which one?

Is that one jump of 14 between the numbers? so the 14 times table?

Or two jumps of 7 between them?   so the 7 times table?

Or seven jumps of 2 between them? so the 2 times table?

We can quickly eliminate the 14 times table and the 2 times table as 91 and 105 are not even. We now check to see whether 7 is a common factor of 91 and 105. Yes it is.

91 ÷ 7 = 13

105 ÷ 7 = 15

Our fraction simplifies to 13/15.