

Over the line

Annotation

Rangi solves this 'change unknown' addition problem, by using subtraction and thus applying an inverse operation to find the difference. He adds 15 to 185 to make 200, which he identifies as an easy number to operate with. He knows that to compensate for the addition to make an easy number he must also add 15 to the difference found. He readily recognises the more efficient strategy and works easily with these numbers.

Problem: Over the line

The teacher shows this problem to the student and reads it with him as required:

There were 472 runners altogether in the marathon. 185 have already crossed the finish line. How many are yet to complete the race?

Student response

Rangi: It's 287.

Teacher: Tell me how you did that.

Rangi: I said $472 - 200$ is 272 then I added 15 because I'd taken away 15 too many.

Teacher: What do you know that helped you?

Rangi: I know that I could have added to find the difference but it was quicker to find the difference by subtracting.

Teacher: Tell me why you did it that way.

Rangi: I could just see 15 more to make 200 so that was easy to subtract.

Teacher: How would you write that?

Rangi: Mmmmm..um... I suppose I'd just write what I did...like (he writes $472 - 200 = 272$, $272 + 15 = 287$) so there's like 287 more runners to go.

$$472 - 200 = 272$$

$$272 + 15 = 287$$