

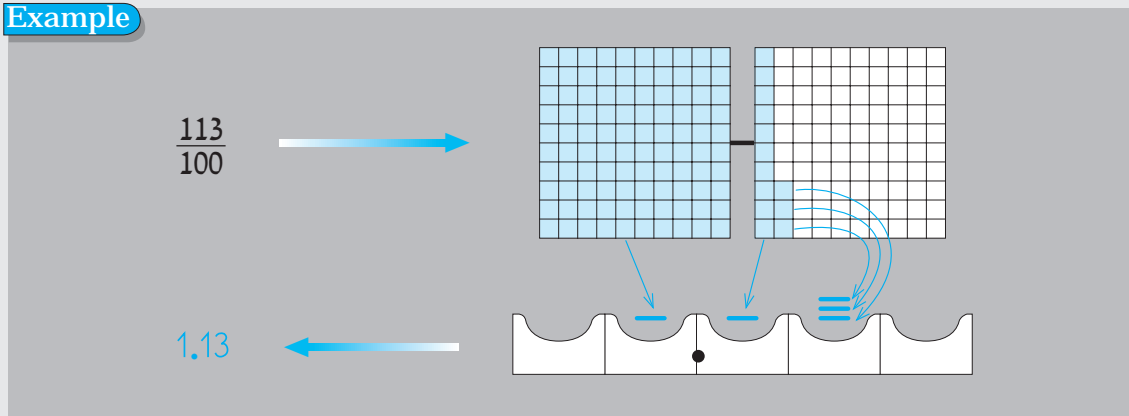
G. Teaching decimal numbers using squares and abacuses

29. Finding the decimal representation of a given fraction $\frac{a}{b}$

Method a:

We draw the fraction in the partitioned square. We can see how the hundredths assemble into tenths, and the tenths into whole numbers (in a mixed number). From the square drawing we can know exactly how many hundredths, tenths and whole numbers the number consists of. We draw in the abacus a disk for each tenth, each hundredth, and so on.

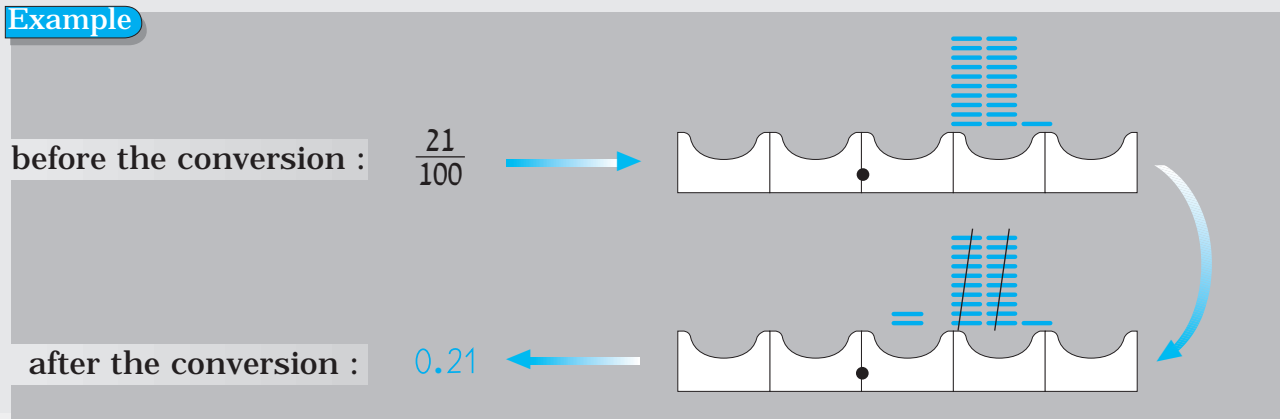
Example



Method b:

We draw all the hundredths in the hundredths entry of the abacus, and then we convert in steps, until we get a completely converted abacus.

Example



To the teacher:

When there are many hundredths or thousandths, method b can be tiresome. For instance, in the first example, we would have to draw 113 disks in the hundredths entry. Therefore, only students that are already capable of performing the operation **in their mind** usually take method b. If a student does not succeed solving by method b, it is recommended that he or she take method a.

Some of the students already perform all the computations in their mind. Those who do not succeed should be directed back to the manipulatives. It is advisable to have discussions where you ask students to describe in words what they do with the manipulatives. This will give them a chance to proceed towards performing the concrete operations in their mind.