

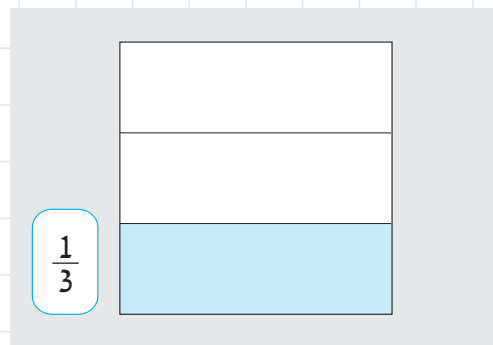
C. Teaching fraction expansion using squares

16. fraction expansion

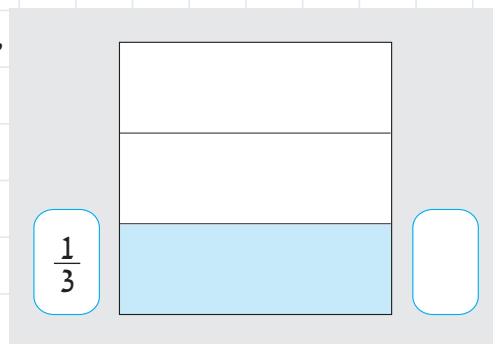
1 Take the sheet of expansion transparencies.

a. Here is the fraction $\frac{1}{3}$:

Try to increase 5 times the number of equal parts, using an appropriate transparency.

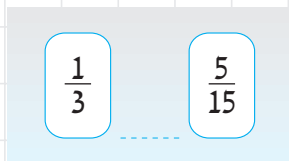


b. Draw in the following square the new partition, using an appropriate partitioning square.



c. Write beside the square the fraction you get.

d. Write = or \neq :



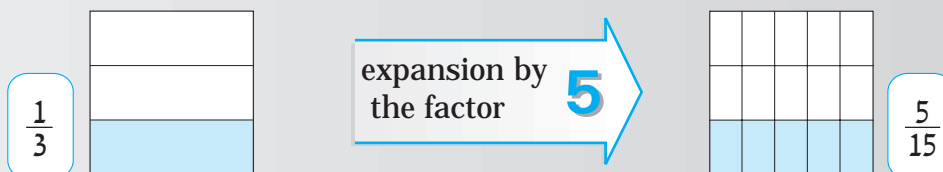
Explain: _____

The operation we have just performed is called **expansion of a fraction**.

The transparency in which the square is divided into 5 equal parts is called **a transparency of expansion by the factor 5**.



The fraction $\frac{5}{15}$ is an expansion of $\frac{1}{3}$, and we got it using the transparency of expansion by a factor 5.



◀ continued...

C. Teaching fraction expansion using squares

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2 Consider the fraction $\frac{2}{3}$

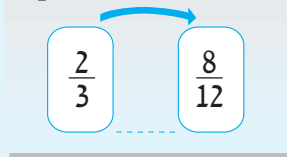
a. Draw the expansion in the right square and write beside it the fraction you get.

the fraction before the expansion

the fraction after the expansion

b. Has the size of the colored area changed? _____

Write = or ≠ : expansion factor 4



Compare the two drawings:

- By how many times did you increase the number of equal parts? _____
- By how many times did you increase the number of colored parts? _____

In mathematical language we write: $\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$

Discussion What does the 4 in the numerator tell us?
What does the 4 in the denominator tell us?

To the teacher:

In this chapter the students are not supposed to perform expansions by multiplying the numerator and the denominator. They should solve the exercises using the transparencies or the partitioning squares, and then describe the concrete work by the written exercise.