PROBLEM SOLVED
MAKING SENSE OF MATHEMATICS

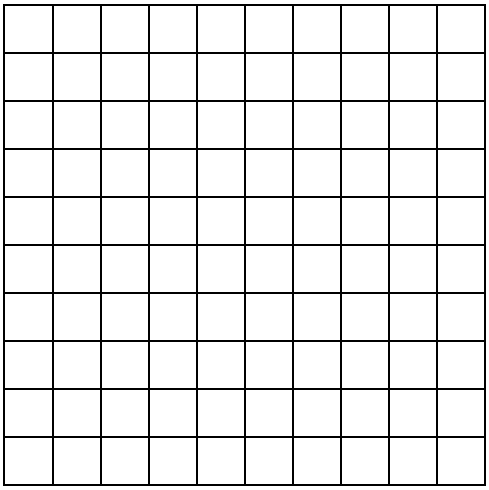
Fraction Decimal Equivalents
A Closer Look at the Video

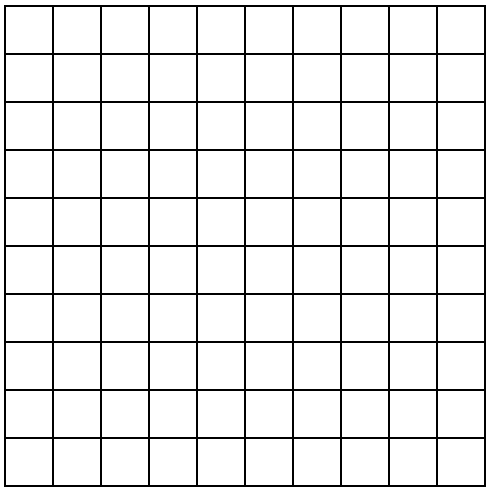
After watching the *Fraction Decimal Equivalents* video, make sense of the mathematics by taking a closer look at the problems and solutions. Use the comments and questions in bold to help you understand equivalent fractions and decimals.

Problem 1: Skylar's rain gauge measures $\frac{3}{4}$ inch of rain, while the weatherman says we received 0.75 inch of rain. Are these two reports the same?

One way to build understanding of equivalent fractions and decimals is to represent the numbers with a 10-by-10 grid. There are 100 small squares, so each small square is one hundredth of the entire grid. There are 10 rows and 10 columns, so each row and each column is one tenth of the entire grid.

Shade $\frac{3}{4}$ of the first 10-by-10 grid and 0.75 of the second 10-by-10 grid.

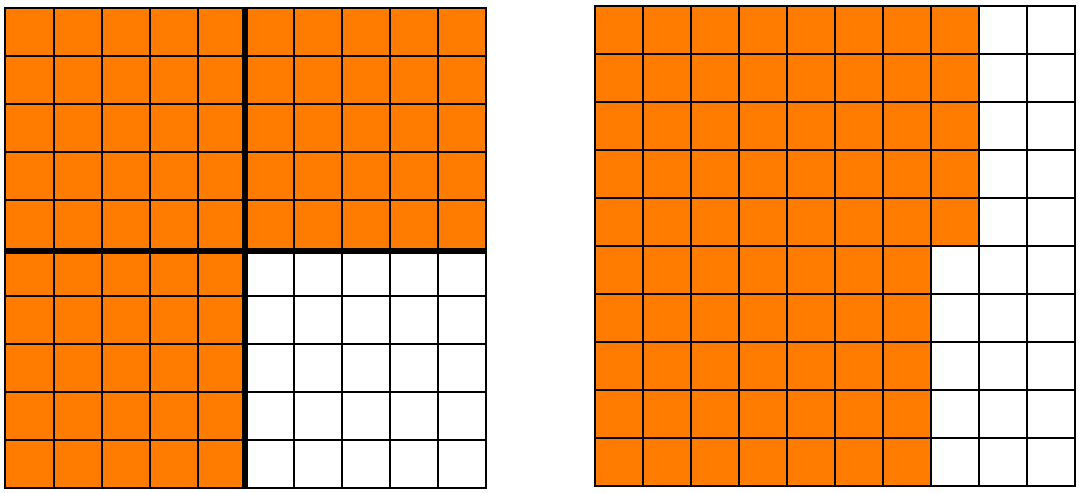




How many small squares are shaded in the first grid? How many small squares are shaded in the second grid?

MakingSense

In both cases seventy-five squares are shaded, so $\frac{3}{4}$ inch = 0.75 inch.

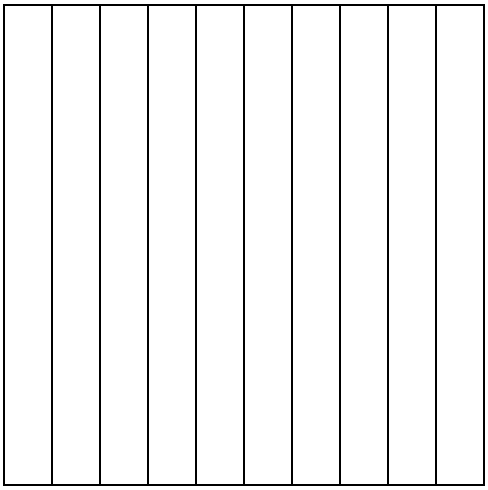


Use the grids to explain why $\frac{3}{4}$ and 0.75 are equal.

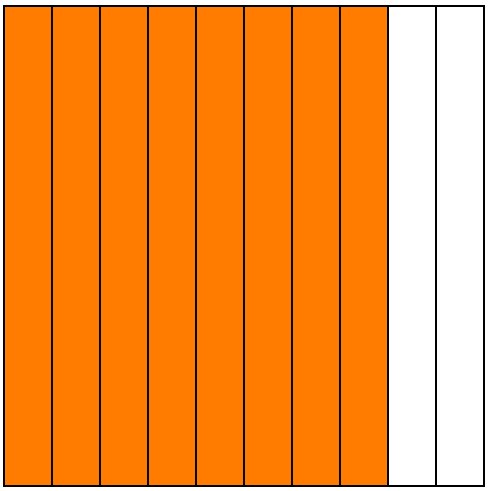
Since the same amount is shaded in both grids, 75 out of 100 total squares, the numbers are equivalent. You can rearrange the shaded squares in the first grid to show seven shaded columns, or seven tenths, and an additional five shaded squares, or five hundredths.

Problem 2: What fraction is equivalent to 0.8? Explain how you determined your answer.

The following grid is divided into ten equal columns. Shade 0.8 of the grid.



Eight out of ten columns are shaded, so eight tenths of the grid is shaded.



Now write 0.8 as a fraction.

$0.8 = \frac{8}{10}$

You can write eight tenths as a fraction or a decimal. You see the numerator, 8, and the denominator, 10, when you write eight tenths as a fraction. You only see the numerator, 8, because the denominator, 10, is determined by place value, when you write eight tenths as a decimal.

The purpose of representing and solving problems with a diagram is to develop understanding of what it means when two numbers are equivalent. Once you can make sense of the problem by using a diagram, you can determine equivalences mentally, with a paper and pencil procedure, or with a calculator.