

Working with Percents

STRAND: Number and Number Sense

STRAND CONCEPT: Rational Number Equivalencies

SOL 6.2a

Remediation Plan Summary

Students will represent and determine equivalencies among fractions, decimals, and percents using a 10 by 10 grid.

Common Errors and Misconceptions

- Students may not realize that a percent is out of 100 and may not convert a fraction or decimal accordingly.
- Students may not see that 0.5 and 0.50 are equivalent values because they don't realize the zero is just a placeholder.
- Students sometimes have difficulty understanding that equivalent fractions, decimals, and percents all represent the same part of a whole

Materials

- What Do You Notice? handout
- Base-Ten Grids for Activity
- Blank Base-Ten Grids handout for students
- Colored pencils or markers

Introductory Activity

- Pass out the "What Do You Notice?" activity sheet and ask students to complete it. Have a group discussion about the patterns in the activity. Students should notice that #1 and #4 are the same and #2 and #3 are the same. Help students see the connections present in this activity. Dividing by 100 is the same as multiplying by 0.01 and multiplying by 100 is the same as dividing by 0.01.

Plan for Instruction

1. Discuss how many squares make up a 10 by 10-squares grid. *What does the word percent mean?* Emphasize with students that the definition of percent means "out of a hundred" and that is why we will use a 10 by 10 or hundreds grid for percents.
2. Display the shaded in grid. *Who has a quick estimate of the percent of the squares that are shaded?* Record student responses. *How did you estimate the percent of the whole that is shaded?*
3. As a class, determine the fraction and decimal equivalencies for the picture. Write below the grid the percent and ask students if they know what fraction is represented by the picture. Explain that the denominator is the whole or number of squares in the grid (100) and the numerator represents the number of squares that are shaded. Then encourage students to

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reduce the fraction to simplest form. Ask students if they know what decimal is represented by the picture and write that next to the fraction equivalency.

4. Ask volunteers to come up to the board/document camera and shade in a portion of the three remaining grids. Next, have the volunteers ask the class what percent of each grid is shaded. Select two more students to write the fraction and decimal equivalencies.
5. Distribute colored pencils and a Blank Base-Ten Grids recording sheet to each student. Assign each student four *different* percents to color in their four grids and to label appropriately with the percent, the fraction, and the decimal equivalencies. Examples may include: 2%, 5%, 7%, 13%, 25%, 42%, and 68%. During the activity, observe the students as they complete their grids, and ask them to explain the steps they are taking. Check for accurate expression of fractions, decimals, and percents, both in written form and in conversation. Encourage students to share their explanations with the rest of the class.

Pulling It All Together (Reflection)

Exit Slip: Write three different fractions or decimals between 30% and 40%.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

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What Do You Notice?

1. Multiply 56 by 100 Answer: _____

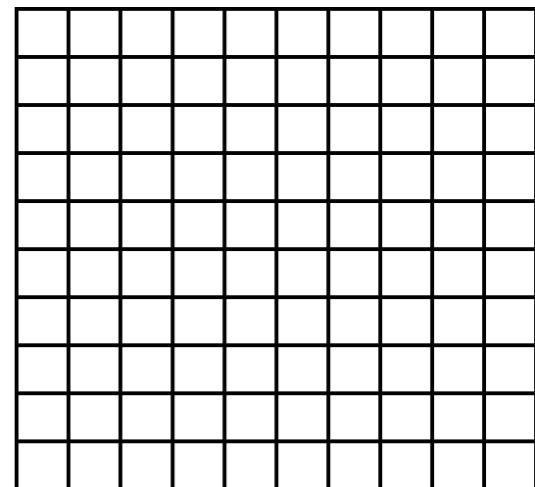
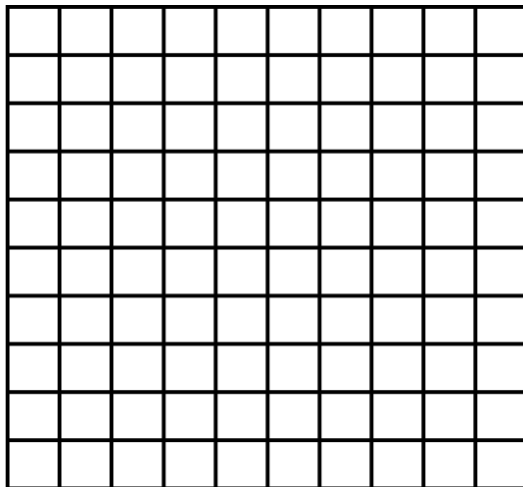
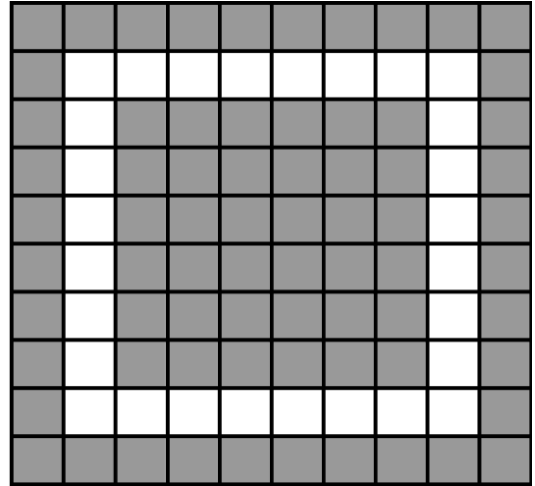
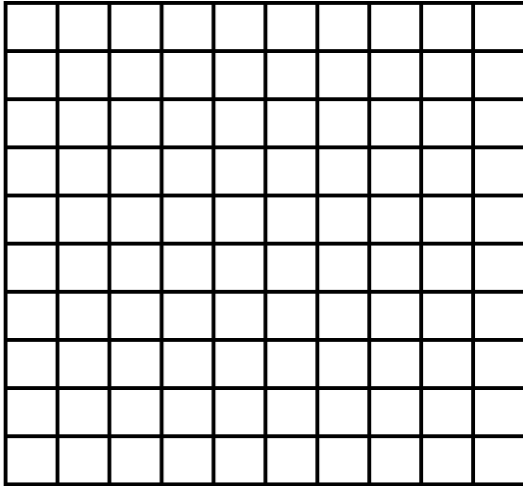
2. Divide 56 by 100 Answer: _____

3. Multiply 56 by 0.01 Answer: _____

4. Divide 56 by 0.01 Answer: _____

Look at your answers above, what do you notice?

Base-Ten Grids for Activity



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Blank Base-Ten Grids

