Fractions, Decimals and Percents

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Introduction

This activity gives students an opportunity to explore the relationship between fractions, decimals, and percents.

Grades 6-8

NCTM Number and Operations Standards

- Understand numbers, ways of representing numbers, relationships among numbers, and number systems
- Work flexibly with fractions, decimals, and percents to solve problems

Files/Materials Needed

FracDecPer1.edc, FracDecPer2.edc

PART 1 RELATING FRACTIONS, DECIMALS, AND PERCENTS

1

a. Launch TI-Navigator™ on the computer and start the session.
b. Have each student log into NavNet on their calculator.

2

a. Open the LearningCheck™ file ***FracDecPer1.edc*** on the computer.
b. Drag the window divider so the questions in the right column cannot be seen by the students.
c. Highlight the first question and click *File, Send, Item as Quick Poll*. This will reveal the LearningCheck™ question in the *Poll Prompt* window of **Quick Poll**.
d. Instruct students to send the percent, fraction (with denominator 100), and decimal representation, for the grid. Have students enter the information in the same way (correct order with commas separating each number representation), so that results will be aggregated in the **Quick Poll** *Summary Window*. For example, "40%, 40/100, 0.40" is a possible response to the first question.

3

Repeat steps c and d above for the next three LearningCheck™ questions.

4

After collecting responses for the first four questions, ask students to determine the reduced fraction for the images in questions 1 and 3 by resending those items as **Quick Poll** questions. They will notice that the fraction in question 1, $\frac{40}{100}$, can be reduced to $\frac{2}{5}$, whereas the fraction in question 3 cannot be reduced. Ask students (via **Quick Poll**) which representation of the fraction in question 1 is easiest to work with when converting from a fraction to a percent and a decimal. They should respond that it is easier to convert $\frac{40}{100}$ to a percent and a decimal, rather than $\frac{2}{5}$.

PART 2 WORKING WITH OTHER FRACTIONS

5

a. Send question 5 from the same LearningCheck™ file as a **Quick Poll** question. Students will see a grid that is divided into 7 equal sections, with 4 sections shaded. They will be asked to determine the fraction of a diagram that is shaded.
b. Send question 6 from the same LearningCheck™ file as a **Quick Poll** question. Students will see a 10 × 10 grid whose size and shading matches the previous question.

c. Ask students what they notice about the shading in both diagrams. They should realize that the shading is equal and therefore the fraction from the figure in question 5, ($\frac{4}{7}$), is equal to the approximation for the percent in the figure for question 6 (about 57%). Emphasize that all fractions have an equivalent percent, even if they cannot be written with a denominator of 100.

d. Finally, ask students how they can represent numbers in each of the three ways, especially when working with fractions that cannot be written with a denominator of 100. They should realize that $\frac{4}{7}$ can be written as a decimal by evaluating $4 \div 7 \approx 0.571$, and that this decimal approximation can be used to find the approximate percent, 57.1%.

PART 3 WORKING FLEXIBLY WITH FRACTIONS, DECIMALS, AND PERCENTS TO SOLVE PROBLEMS

6

a. Send students the LearningCheck™ file ***FracDecPer2.edc*** to assess how well students understand the concepts discussed in this activity. This quiz will provide a series of questions that require students to think about the usefulness and connections between these three number representations. Use Class Analysis to review and discuss results with the students.

b. You also have the option of sending the items contained in ***FracDecPer2.edc*** as **Quick Poll** questions.