

# **Module Report**

## **Decimals to Fractions**

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*by Dr. Marilyn Hasty*

### **Course**

MATH 112 (Math for Elementary Teachers) or  
MATH 111 (Mathematics for Life)

### **Description**

This module investigates turning decimal numerals into fractions. It also investigates the difference between fractions less than one and fractions greater than one.

### **Transferability**

This module could transfer to any basic, general studies math course.

### **Faculty Technology Skill**

Faculty need to know how to use a TI-83 Plus calculator.

### **Student Technology Skill**

Student will need to learn how to use a TI-83 Plus calculator.

### **Faculty Equipment**

Faculty will need to have a TI-83 Plus calculator. It would be nice if they had an overhead calculator also.

### **Student Equipment**

Students will need to have access to a TI-83 Plus calculator.

### **Cost**

The TI-83 Plus calculator costs approximately \$98.00. The overhead version costs approximately \$298.00.

### **Improvement on Teaching and Learning**

This module allows students to see fractional representations of decimals instantly. Since the calculator displays in lowest terms, students will be using lowest terms when they evaluate each decimal. After the exercise, the instructor can discuss these representations and what is really meant by lowest terms.

### **Nontechnology Comparison**

Students have problems with changing decimals to fractions. Just showing them the steps is not adequate for helping them learn the material.

### **Pertinent Issues**

Not all calculators will do this. There are calculators other than the TI-83 Plus that will do this. It is best if all students are using the same calculator. If the students are not all using the same calculator, the instructor will need to know how the various calculators work.

**How to Use in the Classroom**

This module is designed to be used when studying decimals and fractions. The instructor might want to start off with an introduction to changing a fraction to a decimal. The instructor might want to go through a problem or two with the students to actually show them the steps to follow on the calculator. This is why it might be advisable to have an overhead calculator available.

The following page is the activity.

## Decimals to Fractions

There are two types of decimals that are equivalent to fractions:

Terminating decimals  $.0625 = \frac{1}{16}$

Repeating decimals  $.66666666\dots = \frac{2}{3}$

$$.428571428571428571\dots = \frac{3}{7}$$

For each decimal below, use a TI-83 Plus calculator to find the fraction in lowest terms that is equivalent to that decimal.

The steps as follows:

1. Type in the decimal. If it is a repeating decimal, you will have to type in at least 12 digits.
2. Press the Math key.
3. Press 1 for fraction.
4. Press enter to get the fraction. This fraction will appear in lowest terms.

Use your calculator to change the following decimals to fractions.

- |                |                       |                 |
|----------------|-----------------------|-----------------|
| 1. .3333333... | 2. .7777777...        | 3. .8           |
| 4. .1875       | 5. .055555...         | 6. .909090...   |
| 7. .277777...  | 8. .833333...         | 9. .45          |
| 10. 4.5        | 11. 1.333333...       | 12. 1.1875      |
| 13. 1.125      | 14. 1.285714285714... | 15. 3.666666... |

How are problems 10 through 15 different from the other problems? How do their decimal values differ? How do their fractional values differ?