Algebra/Geometry Summer Institute 2007
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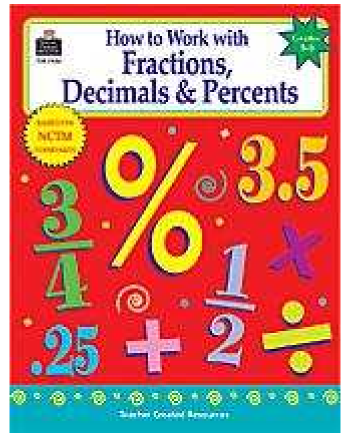
Greenville, MS
6th Grade Math



Fractions, Decimals, Mixed Numbers, and Percents

Mississippi Framework 2007
Objective:
Convert among fractions, decimals, and percent.

Instructions:
The students will convert among fractions, decimals, mixed numbers, and percents.

The students will complete the following problems for bell ringer.

a.) $2 \div 4$ b.) $36 \div 1.2$ c.) $2.5 \div 0.05$

After all students have completed the problems from the bell ringer, the teacher will discuss each problem with the students to review prior knowledge.

Answers to bell ringer:

a.
```
    .5
4 | 2.0
   -2 0
      0
```
$2 \div 4 = .5$

b.
```
          3 0.
1.2. | 3 6 . 0 .
      -3 6
        0 0
       -0 0
```
$36 \div 1.2 = 30$

c
```
         5 0 0.
.05. | 25 .0 0.
      -25
        0 0
       -0 0
          0 0
         -0 0
```
$25 \div 0.05 = 500$

Instructions:
The students will convert from fractions to decimals and percents, decimals to fractions and percents, and percents to fractions and decimals.

Teacher:
Convert a fraction to a decimal and a percent.
To convert a fraction to a decimal, divide the numerator by the denominator.

Demonstration
Write the fraction as a decimal.

$$\frac{2}{5} = .4$$

$$\begin{array}{r} .4 \\ 5\overline{)2.0} \\ \underline{-20} \\ 0 \end{array}$$

2 is the numerator and 5 is the denominator; when dividing a larger number into a smaller number , annex a decimal and 0 to the dividend, then begin dividing.

To write a fraction as a percent, change the fraction to a decimal. Percent means per hundred.

Demonstration
Write the fraction $\frac{2}{5}$ as a percent.

$$\begin{array}{r} .4 \\ 5\overline{)2.0} \\ \underline{-20} \\ 0 \end{array}$$

$.40 = \frac{40}{100}$ which means 40%

Convert a decimal to a fraction and a percent.
To change a decimal to a fraction, write the number over its place value without the decimal point. Then simplify the fraction.

Demonstration
Write the each decimal as a fraction and then a percent.

Decimal as Fraction

$$.25 = \frac{25}{100} = \frac{1}{4} \qquad .2 = \frac{2}{10} = \frac{1}{5}$$

Decimal as Percent
To change a decimal to a percent that is written in hundredths, write the number over 100 without the decimal point, since percent means per hundred, you have your percent.

$$.25 = \frac{25}{100} = 25\%$$

If the decimal is not in hundredths, write the number in hundredths to show per hundred, and then to a percent.

$$.2... = \frac{2}{10} = \frac{20}{100} = 20\%$$

Convert a percent to a decimal and a fraction
To change a percent to a decimal, write the number over 100 without the percent sign, then divide the numerator by the denominator.

Demonstration
Write the percent as a decimal.

$$50\% = \frac{50}{100} = .5$$

$$\begin{array}{r} .5 \\ 100\overline{)\,50.0} \\ \underline{-500} \\ 0 \end{array}$$

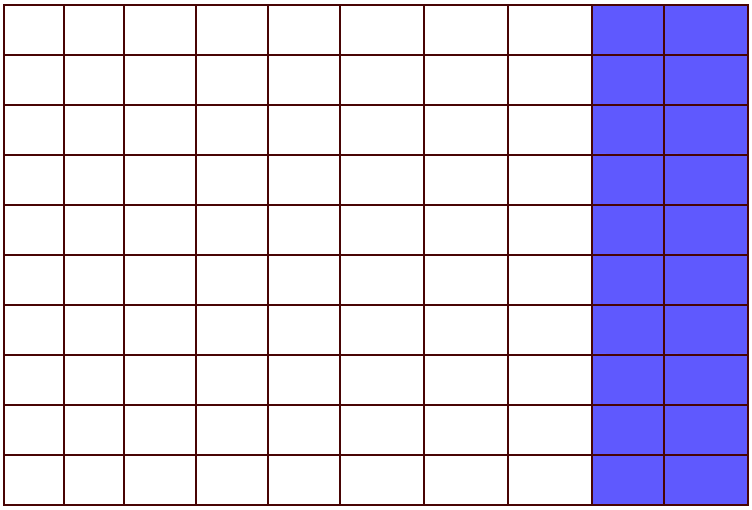
To change a percent to a fraction, write the number over 100, drop the percent sign and simplify the fraction.

Write the percent as a fraction.

$$50\% = \frac{50}{100} = \frac{1}{2}$$

Decimal Models

The students will convert fractions, decimals, and percents using decimal models.



The total number of squares represents the denominator, and the number of shaded squares represents the numerator. Therefore, a fraction can be written from the model.

There are 20 squares shaded and a total of 100 squares.

The fraction would be $\frac{20}{100}$. Simplify the fraction to $\frac{1}{5}$.

Now, change the fraction $\frac{1}{5}$ to a decimal.

$$5\overline{)1.0} = .2$$

$$-10$$

Finally, change the decimal to a percent. $.2 = \frac{2}{10} = \frac{20}{100} = 20\%$

Therefore, the model shows $\frac{1}{5} = .2 = 20\%$

Activity:
The students will work in five groups of threes. The students will be given a bag of skittles which they will find the fraction, percent, and decimal parts of each color in the bag. The students are to write the number of each color over the total number of each color skittles in the bag which will give them a fraction (should simplify fraction if needed). The students will convert the fractions to a decimal and then a percent.

Assignment:
The students will complete a worksheet on writing fractions, decimals, and percents using fraction models.

Materials:
Handouts, pencils, and bags of skittles

Assessment:
The teacher will assist, monitor, and/or observe the students while working in groups on the activity.

The students will be graded on the worksheet on fraction models.

Teacher Made

Group# _____

_

Date _____

What Part of the Color is in the Bag?

Find the amount of skittles in the bag. Write the amount of each color as a fraction, decimal, and a percent.

COLOR	FRACTION	DECIMAL	PERCENT

Fractions, Decimals, and Percents

Name_____

Date _____

Period _____

Write a fraction, decimal, and percent for each model below.

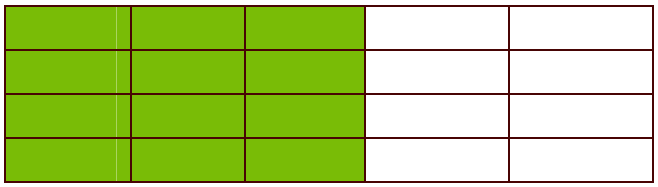
1.

Fraction: _____

Decimal: _____

Percent: _____

2.

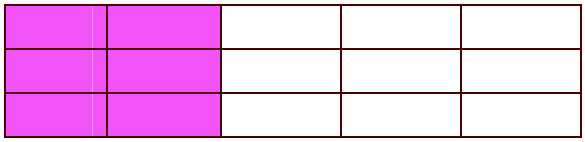


Fraction: _____

Decimal: _____

Percent: _____

3.

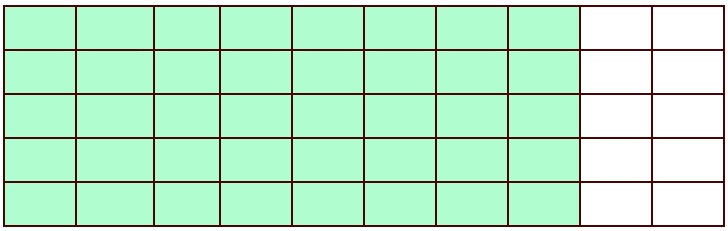


Fraction: _____

Decimal: _____

Percent: _____

4.

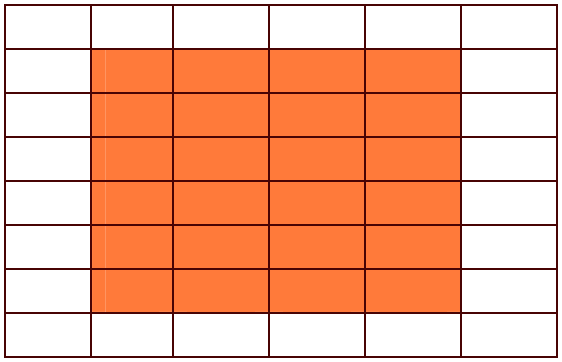


Fraction: _____

Decimal: _____

Percent: _____

5.



Fraction: _____

Decimal: _____

Percent: _____