Fractions and Decimals

Udon Pit Secondary School, Udon Thani, Thailand

Fractions
Form and Nomenclature

Form: What does a fraction look like?

Naming the parts of a fraction:
    Numerator - must be a whole number (any positive integer including zero)
    Denominator - must be a whole number, but not zero.
    the Separation Line

How to read a fraction:
    The value of the numerator over the value of the denominator.
    The value of the numerator divided by the value of the denominator.

Three kinds of fractions:
Proper fraction:	the numerator is less than the denominator (**<**)
Improper fraction:	the numerator is greater than the denominator (**>**)
Mixed number:	combining a whole number with a proper fraction - another way of writing an improper fraction.

How to Use Fractions

Fragments (coconut)
Take any whole and break it into parts. It is unlikely they will be equal.

Fractions or Mathematical Fragments

    Proper Fractions (sharing and orange)
    Take any whole and break it into equal parts.

    Recombine the equal parts equally.
    Recombine the equal parts unequally.

    Improper Fractions and Mixed Numbers
    (**Dividing a class into groups of equal size**)

    Take any number of parts and organize them into smaller wholes.
    What to do with the remainder? (Lead in to decimals)

Comparing and Working with Fractions

Factoring the numerator and denominator.

Quick review of multiplication
Watch out for prime numbers

Increasing and decreasing the size of the numerator and denominator

Equivalent Fractions: Different ways of thinking about the same relative amounts. Factoring the numerator and denominator.

Simplifying or reducing fractions

Unequal Fractions: How does one tell which fraction is larger or smaller?

Find a common denominator

Decimal Fractions
Form and Nomenclature

Another way to write proper fractions and mixed numbers that makes working with them easier. Like working with fingers and toes.

Decimal fractions are fractions whose denominators are always a power of 10. Decimal fractions are always written with a zero and a decimal point.

Proper Decimal Fractions

Recall $1 = 10^0$
$10 = 1 \times 10 = 10^1$
$100 = 10 \times 10 = 10^2$
$1000 = 10 \times 10 \times 10^3$

Decimal $1/1 = 1 = $ one
Fraction $1/10 = 0.1 = $ one tenth
$1/100 = 0.01 = $ one hundreth
$1/1000 = 0.001 = $ one thousandth

Decimal $2/1 = 2 = $ two
Fraction $2/10 = 0.2 = $ two tenths
$2/100 = 0.02 = $ two hundreths
$2/1000 = 0.002 = $ two thousandths

Decimal $3/1 = ?$
Fraction $3/10 = ?$
$3/100 = ?$
$3/1000 = ?$

Improper Decimal Fractions

Focus on the numbers 1 and 10

one	1
ten	10
one hundred	100
one thousand	**1000**

one thousand one hundred eleven	1111

(one thousand + one hundred + ten + one)

two	2
twenty	20
two hundred	200
two thousand	**2000**

two thousand two hundred twenty-two	2222

(two thousand + two hundred + twenty + two)

?	3
?	30
?	300
?	**3000**

?	?
?	

?	1
?	50
?	300
?	**9000**

?	?
?	

Now Start with the Number Zero and a Point and Count Right

0.0	0 tenths
0.1	1 tenth
0.01	1 hundredth
0.11	11 hundreths
0.001	1 thousandth
0.011	11 thousanths
0.111	111 thousanths

0.0	0 tenths
0.2	2 tenths
0.02	2 hundreths
0.22	22 hundredths
0.002	2 thousandths
0.022	22 thousandths
0.222	222 thousanths

0.0	?
0.3	?
0.03	?
0.33	?
0.003	?
0.033	?
0.333	?

0.0	?
0.1	?
0.04	?
0.14	?
0.003	?
0.143	?
0.426	?

Combining the Left and Right

1.0
1.1
11.1
11.11

Manipulating Decimal Fractions

Adding and Subtracting with Decimal Points

Converting Fractions to Decimal Fractions

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HOMEWORK (20 points)
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Problem I (4 points)

3 / 20

Write the numerator for the above fraction. _____ (1 point)

Write an improper fraction _____ (1 point)

Write a proper fraction _____ (1 point)

Write a mixed number _____ (1 point)

Problem II (4 points)
In a classroom there are 20 boy students and 15 girl students.

What fraction of the class is made up of boys? _____ (1 point)

What fraction of the class is made up of girls? _____ (1 point)

The teacher wishes to divide the classroom into groups of students with an equal number of boys in each group and an equal number of girls in each group.

How many groups will there be? _____(2 points)

Problem III (5 Points)
Write the decimal equivalents of the following five fractions.

1/100_____

13/1000_____

11/10_____

⅖_____

¾_____

Problem IV (2 points)
Which of the following numbers is the largest?   _____

½, ¾, 0.7, ⅗

Problem V (3 points)

There are seven oranges and 8 children.
Each orange has seven slices.

Can all children receive the same number of slices? _____

Will there be any slices left over? _____

Write the total number of slices as a mixed number with the number of slices received by each child as the basis for 1.

_____

Problem VI (2 points)

Four farmers with different amounts of rubber sap wish to share their sap in such a way that each farmer receives the same amount.

RUBBER FARMER	RUBBER SAP (LITERS)
Suparon	1.01
Tidarat	0.09
Rungtiwa	2.10
Sujitra	1.80

How much sap will each farmer receive?   _____