Name_____

Unit 3 Study Guide

Parts of a fraction: Write a mixed number and label the parts.

Whole Number — $3\frac{1}{2}$ — Numerator / Denominator

Equivalent Fractions – What are they?

Fractions that are different numbers but equal in size.

Write three equivalent fractions.

$\frac{2}{3}$ $\frac{4}{6}$ $\frac{6}{9}$

Simplest Form - What is it?

a fraction made into its smallest possible form

Convert a fraction to simplest form.

$\frac{32}{40}$

2 | 32 40
4 | 16 20
4 5

$\frac{4}{5}$

Mixed Number to Fraction Form (Steps)

Multiply denomiator by whole number
Add the numerator
Keep the denominator

Example.

$3\frac{4}{5}$

$5 \times 3 + 4 = 19$

$\frac{19}{5}$

Fraction Form to Mixed Number (Steps)

Divide the numerator by the denominator
Quotient is whole number
Remainder is new numerator
Denomiator stays the same

Example.

$\frac{22}{6}$

3
6 | 22
-18
4

$3\frac{4}{6}$

Adding Fractions (Including Mixed Numbers) - Steps

1. Convert
2. Common Denominator
3. Add numerators
4. Keep Denominator
5. Simplify

Example.

$2\frac{1}{2} + 3\frac{1}{3}$

$\frac{5}{2} + \frac{10}{3}$

$\frac{15}{6} + \frac{20}{6}$

$\frac{35}{6} = 5\frac{5}{6}$

Shortcut

$2\frac{1}{2}\ \frac{3}{6}$
$+\ 3\frac{1}{3}\ \frac{2}{6}$
$5\ \frac{5}{6}$

Subtracting Fractions (including mixed numbers)

Steps

1. Convert
2. Common Denominator
3. Subtract numerators
4. Keep Denominator
5. Simplify

Example.

$4\frac{1}{4} - 1\frac{2}{3}$

$\frac{17}{4} - \frac{5}{3}$

$\frac{51}{12} - \frac{20}{12}$

$\frac{31}{12} = 2\frac{7}{12}$

Shortcut

You can't so you have to borrow a whole

$3\,4\frac{1}{4}$ $\quad \frac{3}{12}+\frac{12}{12}=\frac{15}{12}$

$-\,1\frac{2}{3}$ $\quad \frac{8}{12} - \frac{8}{12}$

2 $\quad \frac{7}{12}$

Multiplying Fractions (including mixed numbers)

Steps

1. Convert
2. Simplify
3. Multiply Numerators
4. Multiply Denominators

or

1. Convert
2. Multiply Numerators
3. Multiply Denominators
4. Simplify

Example

$2\frac{1}{3} \times 2\frac{1}{4}$

$\frac{7}{3} \times \frac{9}{4}$

$\frac{21}{4} = 5\frac{1}{4}$

$2\frac{1}{3} \times 2\frac{1}{4}$

$\frac{7}{3} \times \frac{9}{4}$

$\frac{63}{12} = 5\frac{3}{12} = 5\frac{1}{4}$

Dividing Fractions (including mixed numbers)

Steps

1. Convert
2. Copy
2. Dot
3. Flip

Invert and multiply

5. Multiply
6. Simplify

Example

$5\frac{4}{5} \div 1\frac{3}{4}$

$\frac{29}{5} \div \frac{7}{4}$

copy dot flip multiply simplify

$\frac{29}{5} \cdot \frac{4}{7} = \frac{116}{35} = 3\frac{11}{35}$

Multi-digit Division.

List the multiple of the divisor

Divide like you would smaller numbers using long division

Example.

1-42
2-84
3-126
4-168
5-210
6-252

$$\begin{array}{r} 35 \\ 42\overline{)1470} \\ \underline{-126} \\ 210 \\ \underline{-210} \\ 0 \end{array}$$

Equations with Fractions.

KEY WORDS FOR SOLVING EQUATIONS

OPPOSITE OPERATION

Example 1: +

$p + \frac{3}{4} = \frac{5}{6}$

$-\frac{3}{4} \quad -\frac{3}{4}$

Perform the opposite operation. Remember, you have to subtract the 3/4 to both sides.

$p = \frac{5}{6} - \frac{3}{4}$

You must find a common denominator to add fractions.

$p = \frac{10}{12} - \frac{9}{12}$

You would then simplify, though this answer is already in simplest form.

$p = \frac{1}{12}$

Example 2: -

$p - \frac{1}{2} = \frac{3}{4}$

$+\frac{1}{2} \quad +\frac{1}{2}$

Perform the opposite operation. Remember, you have to add the 1/2 to both sides.

$p = \frac{3}{4} + \frac{1}{2}$

You must find a common denominator to add fractions.

$p = \frac{3}{4} + \frac{2}{4}$

Convert the fraction form back to a mixed number.

$p = \frac{5}{4} = 1\frac{1}{4}$

Example 3: x

$p \cdot \frac{6}{10} = \frac{4}{5}$

$+\frac{6}{10} \quad +\frac{6}{10}$

Perform the opposite operation. Remember, you have to subtract the 3/4 to both sides.

$p = \frac{4}{5} \div \frac{6}{10}$

Here's where it gets a little sticky. Remember to divide fractions, we actually invert the second number and multiply.

$p = \frac{4}{5} \times \frac{10}{6}$

Multiply the numerators and denominators

$p = \frac{4}{5} \times \frac{10}{6}$

$p = \frac{2}{1} \times \frac{2}{3}$

$p = \frac{4}{3}$

Remember when multiplying, we can simplify before or after.

$p = \frac{40}{30} = \frac{4}{3}$

$p = 1\frac{1}{3}$

Finally, convert it back to a mixed number.

$p = 1\frac{1}{3}$

Example 4: ÷

$p \div \frac{2}{3} = \frac{5}{6}$

$\times\frac{2}{3} \quad \times\frac{2}{3}$

Perform the opposite operation. Remember, you have to subtract the 3/4 to both sides.

$p = \frac{5}{6} \times \frac{2}{3}$

Multiply the numerators and denominators

$p = \frac{5}{6} \times \frac{2}{3}$

$p = \frac{5}{3} \times \frac{1}{3}$

$p = \frac{5}{9}$

Remember when multiplying, we can simplify before or after.

$p = \frac{10}{18} = \frac{5}{9}$

My student has spent at least 30 minutes studying for this test.

Parent signature_____Date_____