ACC Lesson 3-1: Terminating and Repeating Decimals Date_____

Part I: How to write repeating and terminating decimals

ıe decimal form of a fraction is called a _____.

Repeating decimals can be represented using _____.

***In bar notation, a bar is drawn only over the digit(s) that repeat.

0.3333... = 0.1212... = 11.3858585... =

If the repeating digit is zero, the decimal is a _____.

The terminating decimal $0.25\overline{0}$ is typically written as _____.

Express each repeating decimal using bar notation:

1) 0.1111... 2) 0.6111... 3) 0.616161...

Part II: Converting Fractions to decimals

Any fraction can be expressed as a decimal by dividing the numerator by the denominator.

$\frac{Numerator}{Denominator}$ $\frac{Dividend}{Divisor}$ quotient remainder
divisor)dividend

Step 1: Put the numerator (also known as the dividend) inside the division box.
Step 2: Move the decimal straight up.
Step 3: Solve!

Use long division to express the following fractions as decimals:

1) $\frac{3}{8}$ 2) $-\frac{1}{40}$ 3) $\frac{7}{9}$

4) $-\frac{7}{8}$ 5) $\frac{24,158}{6}$ 6) $8\frac{1}{3}$

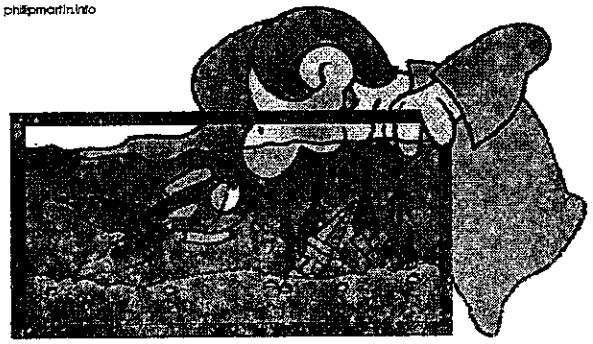
Part III: Converting Decimals to Fractions

Every terminating decimal can be written as a fraction with a denominator of 10, 100, 1,000, or a greater power of ten.

***Use the place value of the final digit as the denominator.

An aquarium is full different types of fish including guppy, angelfish, goldfish, and molly. Use the data that is given to determine the fraction of the aquarium made up by each fish. Write the answer in simplest form.

Fish	Amount
Guppy	0.25
Angelfish	0.4
Goldfish	0.15
Molly	0.2



a. Guppy

b. Angelfish

c. Goldfish

d. Molly

ACC Lesson 3-2A: Compare and Order Rational Numbers Date_____

Part I: Vocabulary

Rational Number - _____

_____.

Examples:

Irrational Number - _____

_____.

Examples:

Common Denominator - _____

_____.

Examples:

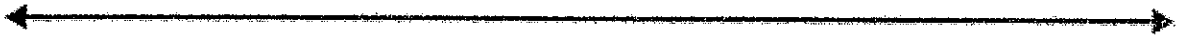
Least Common Denominator (LCD) - _____

_____.

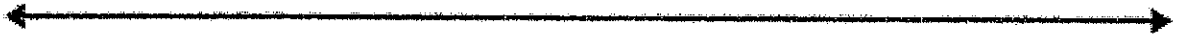
Part II: Compare Rational Numbers on a Number Line (with common denominators)

Compare the following rational numbers by using <, >, or =. Graph each rational number on a number line to find out:

1) $-1\frac{5}{6}$ ____ $-1\frac{1}{6}$



2) $-5\frac{5}{9}$ ____ $-5\frac{1}{9}$



3) $-\frac{4}{5}$ ____ $-\frac{1}{5}$

Part III: Compare Rational Numbers on a Number Line (without common denominators)

What happens if we are asked to compare fractions that do not have common denominators?

Find the LEAST COMMON DENOMINATOR!!!

How to find the least common denominator (LCD).

Step 1 – Factor each denominator into primes using a factor tree.

12 = ___ • ___ • ___
18 = ___ • ___ • ___

Step 2 – Count the number of times each prime number appears in each of the factorizations.

The count of primes in 12 is _____ 2's and _____ 3's.
The count of primes in 18 is _____ 2's and _____ 3's.

Step 3 – For each prime number, take the largest of these counts.

The largest count of 2's is _____.
The largest count of 3's is _____.

Step 4 – Write down that prime number as many times as you counted for it in step 3.

Step 5 – The least common denominator is the product of all the prime numbers written down.

4) $\frac{5}{6}$ ____ $\frac{7}{9}$

5) $\frac{1}{5}$ ____ $\frac{7}{50}$

6) $-\frac{9}{16}$ ____ $-\frac{7}{10}$

7) In Mr. Huang's class, 20% of students own roller shoes. In Mrs. Trevino's class, 5 out of 29 students own roller shoes. In which class does a greater fraction of students own roller shoes?

Part IV: Order Rational Numbers – Use all the tools learned to compare each number to the group.

Use place value to order rational numbers.

Order the set {3.44, π , 3.14, $3.\overline{4}$} from least to greatest.

10) Order the set {23%, 0.21, $\frac{1}{4}$, $\frac{1}{5}$} from least to greatest.

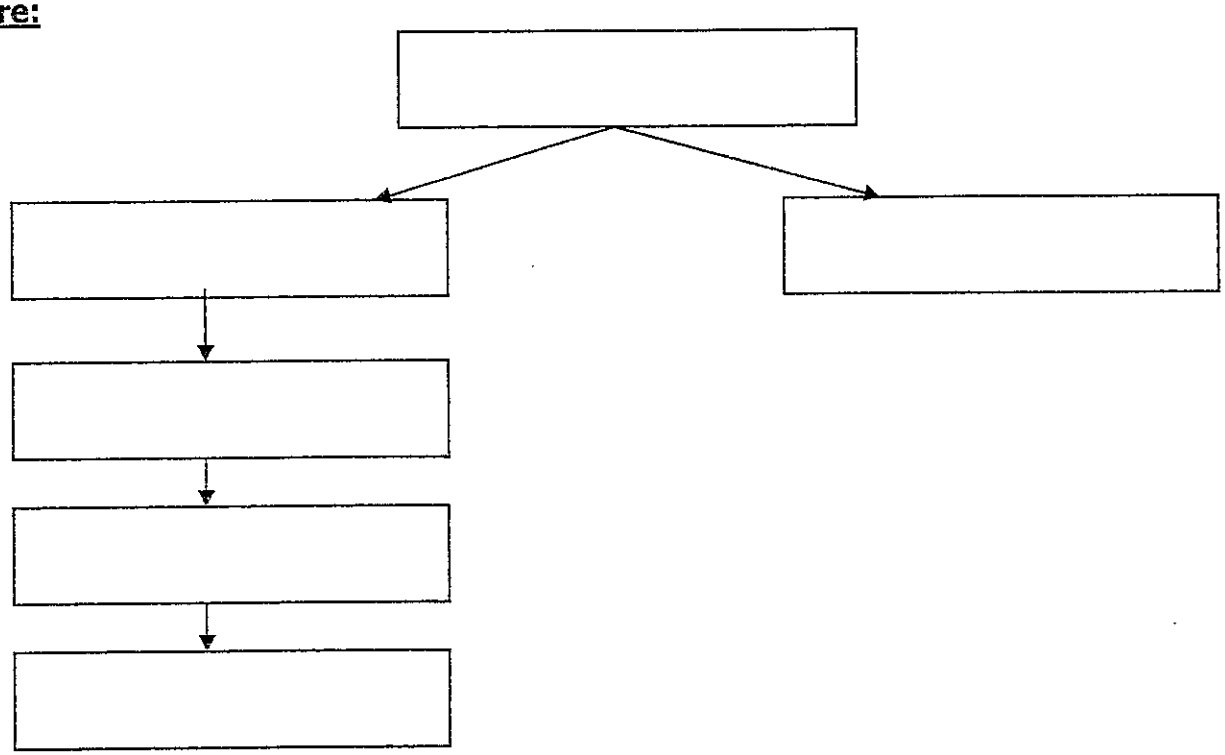
11) Nolan is the quarterback on the school football team. He completed 67% of his passes in the first game. He completed 0.64, $\frac{3}{5}$, and 69% of his passes in the next three games. List Nolan's completed passing numbers from least to greatest.

ACC Lesson 3-2B: Compare and Order Rational Numbers Date_____

Vocabulary:

Sets of numbers	Definition	Memory Jogger
Natural (Counting) Number		
Whole Number		
Integers		
Rational Numbers		
Irrational Numbers		
Real Numbers		

Picture:



Examples: For each number, circle the subset(s) that it belongs to.

1) -8	Real	Rational	Irrational	Integer	Whole	Natural
2) 4.5	Real	Rational	Irrational	Integer	Whole	Natural
3) 0	Real	Rational	Irrational	Integer	Whole	Natural
4) $\sqrt{25}$	Real	Rational	Irrational	Integer	Whole	Natural
5) 0.154...	Real	Rational	Irrational	Integer	Whole	Natural
6) ½	Real	Rational	Irrational	Integer	Whole	Natural
7) π	Real	Rational	Irrational	Integer	Whole	Natural
9) $\sqrt{57}$	Real	Rational	Irrational	Integer	Whole	Natural

Directions: Fill in the blanks with a number, if possible. If not possible, the write " not possible".

10) Give 2 numbers that are rational, but not integers _____ _____

11) Give 2 numbers that are integers and whole numbers_____ _____

12) Give 2 numbers that are integers, but not whole numbers _____ _____

13) Give a number that is rational and irrational _____

14) Name the non-negative number that is a whole number, but not a counting number _____

15) Which set contains only whole numbers?

A $\{0, 3, 8, 17\}$

B $\{0, \sqrt{5}, \pi, 5\}$

C $\{-5, 0, 3, 8\}$

D $\left\{2, \frac{9}{2}, 7, \frac{25}{3}\right\}$

16) Which list of numbers below is a set of irrational numbers only?

A $\{\sqrt{5}, \sqrt{21}\}$

B $\left\{\frac{3}{5}, \frac{\sqrt{21}}{3}, \frac{1}{3}\right\}$

C $\left\{\frac{3}{5}, \frac{\sqrt{21}}{3}, \sqrt{9}, \frac{1}{3}\right\}$

D $\left\{\sqrt{5}, \frac{\sqrt{21}}{3}, \sqrt{9}, \sqrt{21}\right\}$

ACC Lesson 3-3 – Add & Subtract Like Fractions Date _____

Rules for adding and subtracting fractions with the same denominator:

1) _____

2) _____

3) _____

NOTE: YOU MUST STILL FOLLOW THE RULES FOR INTEGERS!

Examples:

1) $\frac{3}{8}+\frac{3}{8}$

2) $\frac{7}{10}-\frac{5}{10}$

3) $\frac{9}{10}+\frac{3}{10}$

4) $-\frac{5}{9}+\frac{7}{9}$

5) $-\frac{3}{4}-\frac{2}{4}$

6) $-\frac{5}{12}-\left(-\frac{3}{12}\right)$

7) **STATES** Most of the state names in the United States end in a vowel. Of the 50 states, 25 of the state names end in either an *a* or an *e* and 6 end in either an *i* or an *o*. If none of the state names end in a *u*, what is the fraction of state names that end in a vowel?

8) **JIGSAW PUZZLES** Over the weekend, Halverson had put together $\frac{3}{16}$ of a jigsaw puzzle, while Jaime put together $\frac{10}{16}$ of the puzzle. Who had completed a greater fraction of the jigsaw puzzle, and by how much?

ACC Lesson 3-4: Add and Subtract Unlike Fractions Date ____

You MUST get a common denominator before you add or subtract the fractions.

Examples:

1) $\frac{8}{15}-\frac{1}{5}$

2) $\frac{7}{16}+\frac{3}{8}$

3) $\frac{4}{9}-\frac{1}{12}$

4) $\frac{3}{4}-\left(-\frac{1}{2}\right)$

5) $-\frac{5}{6}+\frac{1}{4}$

6) $-\frac{2}{3}-\left(-\frac{3}{4}\right)$

7) $-\frac{3}{10}+\frac{5}{20}$

8) $\frac{7}{12}-\left(-\frac{1}{3}\right)$

9) $-\frac{7}{10}-\frac{4}{15}$

10) $5-\frac{1}{4}$

11) $-\frac{2}{3}-\left(-\frac{1}{2}\right)$

12) $\frac{5}{6}-\left(-\frac{3}{4}\right)$

13) **EYE COLOR** If $\frac{2}{3}$ of the girls in class have brown eyes and $\frac{1}{4}$ of the girls have blue eyes, what fraction of the girls in class have neither blue or brown eyes?

ACC Lesson 3-5: Add and Subtract Mixed Numbers Date ____

When adding and subtracting mixed numbers –

1) get a common denominator
2) add or subtract the numerators
3) add or subtract the whole numbers
4) reduce
5) don't forget integer rules!

Examples:

1) $5\frac{3}{8}-4\frac{1}{8}$

2) $3\frac{7}{8}+5\frac{3}{4}$

3) $8\frac{4}{5}-2\frac{9}{10}$

4) $3\frac{5}{8}-2\frac{7}{8}$

5) $6-2\frac{3}{4}$

6) $3\frac{1}{2}+2\frac{5}{8}-4\frac{1}{4}$

7.) **KNITTING** Nastia knitted two scarves for her dolls. One was $8\frac{3}{4}$ inches long. The other was $1\frac{1}{2}$ inches shorter than the first. How long was the second scarf?

ACC Lesson 3-6: Multiplying Fractions Date _____

Steps:
1) Change mixed numbers into fractions
2) Cross reduce
3) Multiply numerators
4) Multiply denominators
5) Reduce

NOTE: You MUST follow the rules for integers!!!!

Examples:

1) $\frac{1}{2} \bullet \frac{4}{5}$

2) $\frac{15}{24} \bullet \frac{3}{20}$

3) $-\frac{1}{7} \bullet \frac{1}{5}$

4) $-\frac{4}{9} \bullet (-5)$

5) $2\frac{4}{5} \bullet \frac{1}{3}$

6) $-5\frac{5}{6} \bullet \left(-6\frac{3}{8}\right)$

7) $9\frac{7}{9} \bullet \left(-7\frac{3}{4}\right)$

8) $\frac{2}{3} \bullet \left(-4\frac{1}{3}\right)$

9) Find $\frac{1}{60}$ of $\frac{1}{60}$ of an hour.

10) HIKING A hiker averages $6\frac{3}{8}$ kilometers per hour. If he hikes for $5\frac{1}{3}$ hours, how many kilometers does he hike?

ACC Lesson 3-8: Dividing Fractions Date _____

Reminder for steps to divide fractions:

1) _____

2) _____

3) _____

4) _____

Examples:

1.) $-\frac{1}{6} \div \frac{1}{5}$

2.) $5 \div \frac{3}{5}$

3.) $\frac{6}{7} \div \frac{1}{7}$

4.) $\frac{3}{4} \div -\frac{1}{2}$

5.) $8 \div \frac{1}{3}$

6.) $-\frac{1}{5} \div \left(-\frac{1}{4}\right)$

7.) $7 \div \frac{3}{7}$

8.) $\frac{4}{7} \div \frac{8}{9}$

9.) $-8\frac{1}{3} \div -5$