Name_____ Date _____

Mr. Tallman   Math 7

Do Now

Reduce the following fractions to their simplest forms.

1) $\frac{15 \div 5}{30 \div 5}$ $\frac{3 \div 3}{6 \div 3}$ ⬭$\frac{1}{2}$ 2) $\frac{9 \div a}{27 \div a}$ $\frac{1}{3}$ 3) $\frac{16 \div 8}{24 \div 8}$ $\frac{2}{3}$

Identify the place value of each underlined number.

3) 0.34974   4) 4.75   5) 3.89004

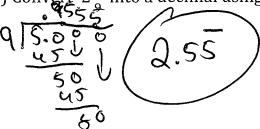Hundredths _____   tenths _____   ten-thousandths _____

Lesson #12 – Converting Between Fractions and Decimals

Example 1) Convert $\frac{1}{8}$ into a decimal using long division.

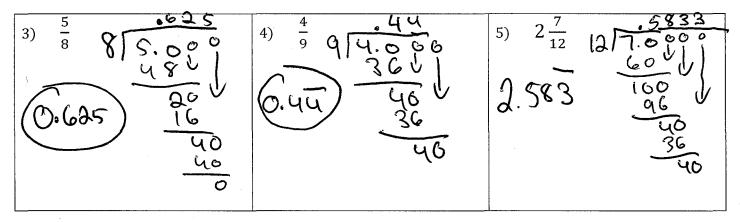**Steps to converting a fraction into a terminating decimal using long division:**

Steps	Example
1) Reduce the fraction. Write a division problem where we are dividing the **denominator into the numerator.**	Already reduced $8\overline{)1}$
2) Place a decimal point and a place holder zero after the last digit inside the division symbol.	$8\overline{)1.0}$
3) "Bring up" the decimal point and begin dividing.	$8\overline{)1.000}$ = .125 8 20 16 40 40 0
4) If the decimal ends or repeats, stop dividing. Be sure to include a repeat bar in your answer if the decimal repeats	⬭.125

Example 2) Convert $2\frac{5}{9}$ into a decimal using long division.

$$9\overline{)5.000} \quad \boxed{2.5\overline{5}}$$

with work: .2555, 45, 50, 45, 50

Now, You Try!

Convert the following fractions into decimals using long division.

3) $\frac{5}{8}$

$$8\overline{)5.000}$$
.625
48
20
16
40
40
0

$\boxed{0.625}$

4) $\frac{4}{9}$

$$9\overline{)4.000}$$
.44
36
40
36
40

$\boxed{0.4\overline{4}}$

5) $2\frac{7}{12}$

$$12\overline{)7.0000}$$
.5833
60
100
96
40
36
40

$2.58\overline{3}$

We can also convert **decimals into fractions.**

Example 6) Convert 0.25 into a fraction in lowest terms.

Steps to converting decimals into fractions:

Steps	Example
1) Identify the decimal place value in which the number terminates or repeats.	Hundredths
2) Create a fraction. The numerator is simply the decimal portion of the number. The denominator is found by determining which place value the decimal terminates. **For terminating decimals, think 10's.** The number of 10's depends on where the decimal terminates or how many digits repeat.	$\dfrac{25}{100}$
3) Reduce the fraction to lowest terms.	$\dfrac{25 \div 25}{100 \div 25} \quad \boxed{\dfrac{1}{4}}$

Example 7) Convert 5.42 into a fraction in lowest terms.

$$\frac{42 \div 2}{100 \div 2} \quad \frac{21}{50} \qquad \boxed{5\frac{21}{50}}$$

Convert the following decimals into a fraction or mixed number in lowest terms.

8) 0.8	9) - 0.23	10) 4.128
$\frac{8 \div 2}{10 \div 2}$ $\boxed{\frac{4}{5}}$	$\boxed{\frac{-23}{100}}$	$4\frac{128 \div 2}{1000 \div 2}$ $4\frac{64 \div 2}{500 \div 2}$ $4\frac{32 \div 2}{250 \div 2}$ $\boxed{4\frac{16}{125}}$
11) 0.3	12) 2.137	13) - 5.3
$\frac{3}{10}$	$2\frac{137}{1000}$	$-5\frac{3}{10}$

14) Order the following from least to greatest. $-\frac{2}{3}, \frac{5}{9}, 0.5, -1.3, -\frac{10}{3}$

$-0.\overline{6}$ $0.\overline{5}$ $-3.\overline{3}$

$$-\frac{10}{3}, \ -1.3, \ \frac{-2}{3}, \ 0.5, \ \frac{5}{9}$$

15)   In one season, Sammy Sosa had 189 hits during his 577 at-bats. What was Sammy Sosa's average (as a decimal)? Round to the *nearest thousandth.*

$\frac{189}{577}$

$577 \overline{)189.000}$ .31

$577 \overline{)189.0000}$ .3275
-173 1
  15 9 0
 -11 5 4
   4 3 6 0
   4 0 3 9
     3 2 1 0
     2 8 8 5

0.3275

$\boxed{0.328}$