Unit 1

L3 Writing a Rational number as Fractions or Decimals

Case 1: From Fraction to Decimal

– Use a calculator

– The **period** of a rational number is the infinitely repeating decimal(s) --we put a bar over it.

Ex 1:

a) $\frac{16}{11}$ = the period is

b) $\frac{63}{55}$ = the period is

c) $\frac{1}{2}$ = the period is

Case 2: From Decimal to Fraction

Ex 2: Write the following terminating decimals as reduced fractions.

a) 0.3 =

b) 1.22 =

c) 0.225 =

d) 2.05 =

e) 5.0025 =

f) 3.012 =

Warm up:

1. write as decimals:

a) 1/9= $0.\overline{1}$
b) 2/9= $0.\overline{2}$
c) 3/9= $0.\overline{3}$
d) 4/9= $0.\overline{4}$
e) 5/9= $0.\overline{5}$
f) 6/9= $0.\overline{6}$
g) 7/9= $0.\overline{7}$
h) 8/9= $0.\overline{8}$

2. write as decimals:

a) 1/99 = $0.\overline{01}$
b) 12/99 = $0.\overline{12}$
c) 23/99 = $0.\overline{23}$
d) 45/999 = $0.\overline{045}$

Trick: $\frac{x}{9} = 0.\bar{x}$ and $\frac{xy}{99} = 0.\overline{xy}$

Ex 3: Write the following repeating decimals as reduced fractions.

a) $0.\overline{3}$ =

b) $1.\overline{23}$ =

c) $0.\overline{225}$ =

d) $2.\overline{05}$ =

e) $5.\overline{0025}$ =

f) $3.\overline{012}$ =

Practice:
WS: Practice L3
sets 1-3

If period is not right after decimal point!!

Ex 3: write $0.1\overline{6}$ as a reduced fraction

Method 1:

Reduce and change to improper fraction

$0.1\overline{6} \rightarrow 1.\overline{6} = 1\frac{6}{9} = 1\frac{2}{3} = \frac{5}{3} \rightarrow \frac{5}{30} = \frac{1}{6}$

X 10 ÷ 10

We multiply by 10 to get the period alone after the decimal point.

Since that changes the value we have to undo it later by dividing by 10 again.

Dividing by 10 means just add the zero in the denominator.

Method 2: to write $0.1\overline{6}$ as a reduced fraction

Explanation:

1) Make an equation –write the period twice
2) Multiply both sides by a power of 10 to move decimal point to after 1 period
3) and again to before one period.
4) Subtract the 2 equations
5) Solve for x ; and reduce the fraction if possible

Steps:

1) Let $x = 0.16\overline{6}$
2) $100x = 16.\overline{6}$
3) $-\ 10x = 1.\overline{6}$
4) $90x = 15.0$
5) $x = \frac{15}{90}$

$= \frac{1}{6}$

Ex 4: write $1.2\overline{36}$ as a reduced fraction

Method 1:

Method 2:

Practice:
WS: Practice L3
set 4