Name.....Class.....No.....

Lesson 2.6

Writing Recurring Decimals in Fraction Form 2

**2) Recurring and non-terminating decimals**

**Complete the following.**

1. Write $0.31\dot{7}$ in fraction form

Let N $= 0.31\dot{7} = 0.31777...$ ... (1)

Multiply both sides of equation (1) by **100**:

100 N = ..... ... (2)

Multiply both sides of equation (1) by **1,000**:

1,000 N = ..... ... (3)

From equations (3) and (2), we get:

1,000N - 100N = .....

900N = .....

N = .....

Since $N = 0.31\dot{7}$, then $0.31\dot{7}$ = .....

2. Write $1.5\dot{4}\dot{5}$ in fraction form

Let N $= 1.5\dot{4}\dot{5} = 1.54545...$ ... (1)

Multiply both sides of equation (1) by **10**:

10 N = ..... ... (2)

Multiply both sides of equation (1) by**.....**:

..... N = ..... ... (3)

From equations (3) and (2), we get:

.....N - .....N = .....

.....N = .....

N = .....

Since $N = 1.5\dot{4}\dot{5}$, then $1.5\dot{4}\dot{5}$ = .....

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3. Write $6.43\dot{8}0\dot{7}$ in fraction form

Let $N = 6.43\dot{8}0\dot{7}$ = ..... ... (1)

Multiply both sides of equation (....) by .....:

..... N = ..... ... (2)

Multiply both sides of equation (....) by .....:

..... N = ..... ... (3)

From equations (....) and (....), we get:

.....N - .....N = .....

.....N = .....

N = .....

N = .....

N = .....

Since $N = 6.43\dot{8}0\dot{7}$ , then $6.43\dot{8}0\dot{7}$ = .....

From **Investigation,** we can see that:

$0.3\dot{7} = \frac{34}{90} = \frac{37 - 3}{90}$

3 is used to subtract; it is a non-repeating digit of $0.3\dot{7}$

With one repeating digit, add one 9 in the denominator.

With one non-repeating digit, add one 0 in the denominator.

$0.31\dot{7} = \frac{286}{900} = \frac{317 - 31}{900}$

31 is used to subtract; it is a non-repeating digit of $0.31\dot{7}$

With one repeating digit, add one 9 in the denominator.

With two non-repeating digits, add two 0s in the denominator.

$1.5\dot{4}\dot{5} = 1\frac{540}{990} = 1\frac{545 - 5}{990}$

5 is used to subtract; it is a non-repeating digit of $1.5\dot{4}\dot{5}$

With two repeating digit, add one 9s in the denominator.

With one non-repeating digit, add one 0 in the denominator.

$6.43\dot{8}0\dot{7} = 6\frac{43,764}{99,900} = 6\frac{43,807 - 43}{99,900}$

43 is used to subtract; it is a non-repeating digit of $6.43\dot{8}0\dot{7}$

With three repeating digit, add one 9s in the denominator.

With two non-repeating digits, add two 0s in the denominator.

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Express the following decimals in fraction form.

1) $0.5\dot{3}$

.....

.....

2) $1.73\dot{9}$

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3) $3.00\dot{1}\dot{4}$

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4) $16.17\dot{6}1\dot{4}$

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5) $0.0\dot{1}$

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6) $2.6\dot{0}5\dot{1}$

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