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P.5 Mathematics

Lesson one.

Topic: Operations on whole numbers.
Subtopic: Place values of each digit in base five

Steps:

1. Read the given numbers
2. Identify the digits in group form
3. Write the place values of each digit in the numbers given. **E.g**

NUMBERS	PLACE VALUES	WE READ AS
12 five	1 group of fives, 2 ones	One two base five
231 five	2 groups of five fives, 3 groups of fives, 1ones	Two three one base five

EXAMPLE I

3 2 five

3 2 five

Ones

Fives

EXAMPLE II

1 2 4 five

Ones

Fives

Five fives(Twenty fives)

WORK TO DO

1. 4 five
2. 13 five
3. 314 five
4. 300 five
5. 22 five
6. 234 five

Lesson two.

Subtopic: Changing base five to base ten

Steps:

1. Expand given numbers using place values.
2. Multiply the digits with their place values.
3. Add the values to change numbers to base ten.

EXAMPLE I

Change 14 five to base ten.
14 five = (1 x five) + (4 x ones)
= (1 x 5) + (4 x 1)
=5+4
= 9 base ten
= **9 ten**

EXAMPLE II

Change 213 five to base ten
213 five = (2 x five fives) + (1 x fives) +(3 x ones)
= (2 x 5 x 5) + (1 x 5) + (3 x 1)
= (50 + 5 + 3)
= 58 ten

WORK TO DO

Change the following to base ten.

1. 13 five
2. 21 five
3. 123 five
4. 40 five
5. 104 five
6. 313 five

Lesson three.

Subtopic: Changing base ten to base five

Note: Here we use a slogan **B** ananas where **B** stands for the base you are changing to.

N ever — **N** stands for the number given.

R emain — **R** stands for the remainders.

Steps:

1. Draw a three column table.
2. Fill the table with numbers accordingly as shown below.
3. Divide the numbers by the base well and record the remainders.
4. Write the remainders from down and it will be the answer.

EXAMPLE I

Change 9_{ten} to base five

B	N	R
5	9	
5	1	**4**
	0	**1**

9_{ten} = 14_{five}

EXAMPLE II

Change 58_{ten} to base five

B	N	R
5	58	
5	11	**3**
5	2	**1**
	0	**2**

58_{ten} = 213_{five}

WORK TO DO

Change the following to base five.

1. 8 ten
2. 11 ten
3. 42 ten
4. 55 ten
5. 74 ten
6. 33 ten

Lesson four.

Sub topic: ADDITION IN BASE FIVE

NB. Digits used in base five are {0, 1, 2, 3, 4}

EXAMPLE I

2_{five}
$+1_{five}$
$\mathbf{3}_{five}$

EXAMPLE II

$1\ 2_{five}$
$+\ 3\ 2_{five}$
$\mathbf{4\ 4}_{five}$

EXAMPLE III

$^{11}3\ 4_{five}$
$+\ 4\ 2_{five}$
$\mathbf{1\ 3\ 1}_{five}$

Side work

4+2=6
6÷5 =1r1 (Write the remainder first and re-group the other one)

3 + 4 = (7 + 1) = 8
8÷5=1r3(Write the remainder first and re-group the other one)

WORK TO DO

1. $32_{five} + 11_{five}$
2. $211_{five} + 113_{five}$
3. $44_{five} + 32_{five}$
4. $234_{five} + 231_{five}$
5. $330_{five} + 242_{five}$
6. $34_{five} + 43_{five}$

Lesson five.

Sub topic: SUBTRACTION OF NUMBERS IN BASE FIVE

EXAMPLE I

$2\ 3\ 4_{five}$
$-\ 3\ 2_{five}$
$2\ 0\ 2_{five}$

EXAMPLE II

2 8 (3 + 5 =8)
~~3 3~~ five
$-\ 1\ 4_{five}$
$1\ 4_{five}$

NB: When you borrow what we call re-grouping, you borrow a base and add it to the number before as above.

WORK TO DO

1. $43_{five} - 12_{five}$
2. $32_{five} - 21_{five}$
3. $143_{five} - 32_{five}$
4. $234_{five} - 41_{five}$
5. $330_{five} - 140_{five}$
6. $32_{five} - 13_{five}$